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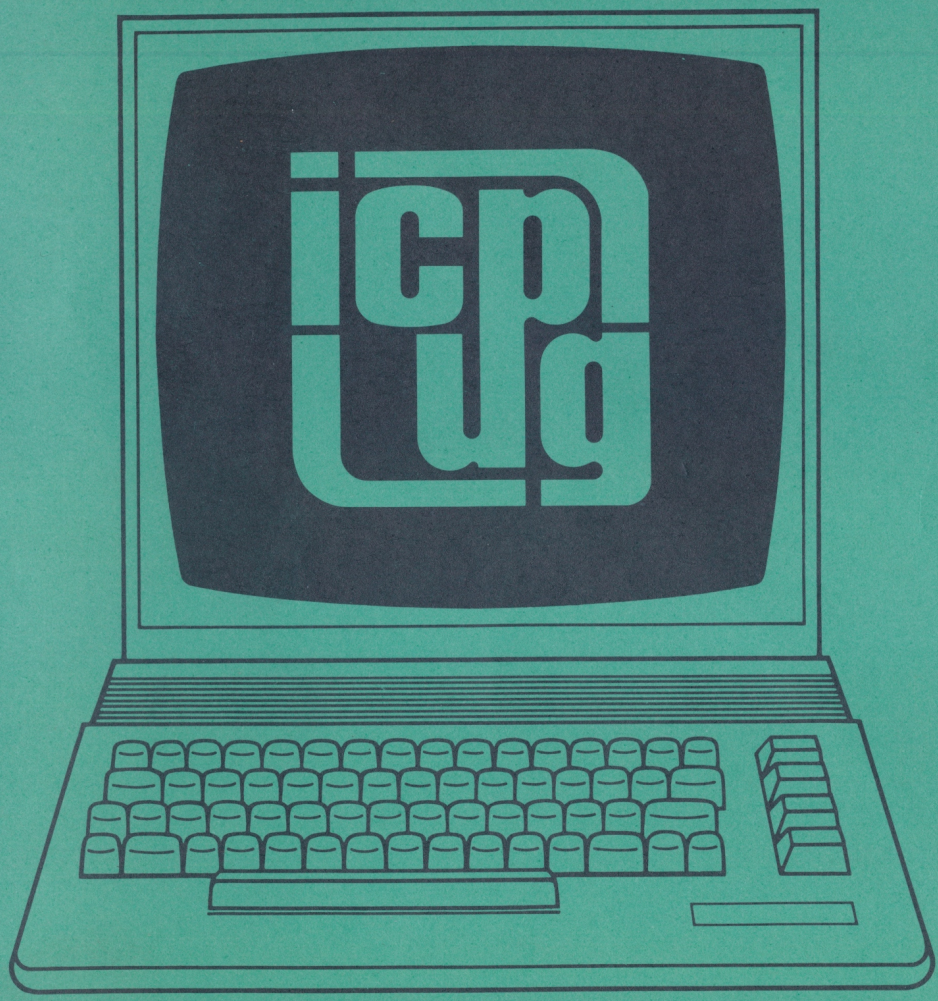

Europe's first independent magazine for CBM users

Volume 11 September / October 1989 Number 5

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icpug newsletter

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EDITOR'S NOTEBOOK

A number of previous encumbents of this page have wanted to do it; they were unable to. I wanted to do it, and at the beginning of my term of penal servitude in the Editorial chair, I speculated that I would not. However, just nine short months later, I am proud, happy, exultant even, to announce that it has happeded. What? you ask? Has the Editor gone off his rocker? No, simply that production of this august Organ / Journal / Magazine / Newsletter / Iliad (yes, everyone calls it something different!) has graduated from 8 bits (ok, Joe, 7½) to 16 bits. This issue is the first to be mastered exclusively an an Amiga.

For those that are interested, the setup comprises an A2000 with 3MB RAM, 40MB hard drive (Quantum/GVP), A2088 Bridge, 1571 (via Access 64) and the HP Laser. The software being used is Protext from Arnor. In backup is a C128, 8250 and 4040, which will cover the occasional disk that the Amiga system can't cope with. There are, however only two disk formats that I cannot read - 1581 and CP/M - if you are unable to use an alternative format, please send such disks to Brian Fowler, who has the technology, as it were.

Converting to Protext on the Amiga was regarded as desirable for a number of reasons. Firstly Vizawrite, although not without its devotees was, well, quirky, slow and restricted in the maximum size of its documents (not really surprising on a C128!). You will recall the restrictions on the use of quotes etc. (Vizawrite would unilaterally strip a variety of characters from merged files). The pound sign (£) needed to be inserted as a control character (their width tables didn't cope with it), other common symbols (eg. {}) had to be specially defined, and there could be only one per line - if you opened a brace you couldn't close it! Every single page footing had to be put in by hand otherwise the paging got screwed, and so on

Protext relieves many of those problems, but is not without one or two niggles of its own. Of primary concern to us, it does not support in its present incarnation (V4.2) the free mixing of multiple proportional fonts. This is something that Vizawrite did really well. In this journal, everything with the exception of program listings, is proportional. Headings, sub headings, body text etc. are all treated by the laser printer as separate fonts. I understand this is to change quite soon (Protext not the laser!), which will make this journal even more impressive.

Anyway, sit back, relax and enjoy this issue.

TWA.

CHAIRMAN'S CHATTER

by John Bickerstaff

By the time you read this article your thoughts could be turning towards Christmas and what you could buy for your computer, what someone else might buy you for you or hope that Santa might hide in your stocking. Naturally you will visit your local computer emporium but before that you could visit the Commodore Computer Show at the Novotel. The show starts on the 17th and continues until the 19th of November. We will have a stand - number 54 on the first floor - so come and talk to us. If you have not renewed your subscription you may do so at the stand.

Please Mr. Postman

We at ICPUG house, or to be more correct at several of the ICPUG committee members' houses, have been unfortunate in not receiving in good time or in a few instances not at all the mail sent to us. This has been particularly noticeable over the last few months. The problem has been taken up wherever possible with the relevant Postal authorities and we hope that they will be able to reduce such occurences in the future. If by any chance you do not receive a reply to a communication sent to any ICPUG official or helper within four weeks - and have stated your current membership number and enclosed return postage - then please write again just in case there has been a problem or an excessive delay in our receiving your correspondence.
Here are two instances to show what does sometimes happen. A member posted an order with his cheque on the 22nd of FEBRUARY and this was delivered (correctly and clearly addressed) to our house on the 12th of AUGUST! Then on the 14th of AUGUST we received a letter from another member of the committee (again clearly and correctly addressed) which was posted on the 25th of MAY. Please let me say that we do receive a large number (hundreds) of letters and that nearly all of these do arrive within a week from the date of posting.

To bind or not to bind

Thank you to all members who wrote advising that they would like to purchase ICPUG binders should we receive sufficient support. So far we have received requests for just over 50 binders but still need more to reach the minimum figure of 100. On investigation the cost was found to be £6.95

each based on an order for 100 with a delivery time of some 4 to 5 weeks. The binders would have black PVC covers and have the yellow ICPUG logo on the spine. They are designed to hold just one year's issues (six). Should there be sufficient extra support from other members after this issue reaches you we might just have these ready for Christmas. You response is awaited with interest.

Making a choice

There are so many alternatives to consider when buying a new computer that to make a firm commitment can be daunting. Take for instance the choice of an Amiga. Should it be a 500 or a 2000 series. Sometimes the decision could be based on finance and then it becomes simple, the 500. But on the other hand if cost is not necessarily of the utmost importance (because of the bank balance or the ability to obtain long term finance). Then it could be less expensive in the long term to purchase a 2000, an expansion card to increase the RAM capacity to 2MB and a controller card with hard disk (or what is known as a hard card). Although the total prices at this stage of the enhancement could still be in favour of the 500, the further expansion to RAM is available on the card within the 2000 whilst this is not practical on the present expansion card on the 500. Then there is the ability to add a bridge board within the 2000 for as little as £200. This is not possible within the 500 which requires an expansion unit as well as the bridge board to achieve the same result.

Consider now the basic 2000. How should the purchase of a hard disk or hard card be approached. There are several alternatives and the most expensive ones at this time are those marketed by Commodore, where the controller card is their own design. There are many third party products available for the 2000 providing greater capacity (more MB) and quicker access times (for reading from and writing to the disk). Then, should you think that you will have a call for an MS.DOS facility, a bridge board and hard disk or hard card can provide hard disk capacity for both systems (MS.DOS and AmigaDOS) which are available from the SAME hard disk or card.

Communications

Many members enquire about communications and how they should start out into the world of modems, bulletin boards and nets. This might be covered by a series of articles within this journal and any member who believes he or she could undertake this task is requested to contact the editor. However, your attention is drawn to a series of articles to be found within the September issue of 'Amiga User International' which forms an good introduction to the subject.

Regional Groups

There are many of our members who give many hours of their free time to organising and running ICPUG regional groups. We endeavour to provide you, the members, with as up to date a list of the group contacts as we are able. You may sometimes find that there have been changes that we have not shown within this journal. This may be due to the time between the change and your receiving the journal. If you become aware of any changes to representatives please let Brian Wise know, thanks.

OBITUARY - BOB BURNS

It is with deep regret that we record the recent death of Bob Burns of Oldham, Lancashire.

Bob had been one of our C-64 copiers for a number of years and had, I know, built up a friendship with many of our members, by his services to them, through the library.

On behalf of the members of ICPUG, the National Committee express their sympathy to his wife and family at their sad loss.

AMIGA TRICKS AND TIPS - BOOK REVIEW

by Peter Hutchinson

Amiga Tricks & Tips is a hefty book of 346 pages; the majority of it concerns the CLI and AmigaBasic. It describes in detail various tricks you can perform that you would not have realised or known about. Some of the programs can be used on their own or incorporated into your own programs.

The CLI

This chapter starts with a Question and Answer session about the CLI, for example copying files using one disk drive, using the multi-tasking facilities and finding out the syntax of a command by typing a ? after the command e.g. COPY ?.

Next, it lists all the new CLI commands in version 1.2 and guess what, no ASK command. Finally it goes into to use of batch files, starting with the familiar startup-sequence. It includes a printer spooler for printing files via RAM, two batch files for copying commands to RAM and a series of batch files for using an Address Book database.

There is a criticism here in the printing, it uses ;KEY rather than .KEY which is the correct syntax.

AmigaBasic

This chapter covers graphics and the use of Intuition. One program that was of particular interest to me was the Brush Transformer program (since ObjEdit was woefully inadequate for me) BUT when I tried it out on some of the large Brushes from Dpaint2 I couldn't get it to work. First it came with an 'Input past end' error and when I corrected that it came up with 'Illegal function call' for the OBJECT.SHAPE command. This only occurred on packed brushes therefore will someone PLEEAASE find out what is causing it and inform me or ICPUG!

Other programs include fast ILBM picture loader, vector graphics (quite impressive) and various fades plus a fast PRINT command and a very useful INPUT command using string gadgets!

User Friendliness

This chapter covers Intuition a bit more and I think would greatly enhance a dull program into a good one. There are Sliders, Click tables, Scrolling Tables, rubber banding, and scrolling backgrounds which sounds particularly impressive!

DOS routines

This includes some useful routines that you can access from BASIC e.g. access to CLI commands, setting features on files such as a comment and their protection flags, checking if a file exits (very useful, no more 'File not found' errors), renaming files (but that can be done with the NAME..AS command), a better program for listing directories, and examining the libraries (I managed to get print-outs of all the commands available, trouble is you are not told what the parameters are for, ah well!).

AmigaBasic Internals

Here it gets a bit more technical, it goes into the complex world of binary BASIC program files. There is a File Analyzer that lists files in Hex and ASCII (this can be done with TYPE...OPT H), programs that decide whether a file is a BASIC program and what type it is. Did you know that the first byte of a BASIC program holds information about whether it is an ASCII, Binary or Protected file? e.g. $F5 indicates a binary file, $F4 is a protected file and ASCII doesn't have a header byte (now changing $F4 to an $F5 unprotects a program!).

There is a long section about how BASIC programs are stored, with descriptions on what the tokens are for. There are also programs that generate DATA statements, produce documented programs, kill remarks and blank lines and so on. There are also two programs that self-modify (although it is a BAD programming technique, it is an interesting trick.).

Two Appendices give a list of all the BASIC tokens.

The Workbench

This is a small section covering string gadgets, hidden messages, the Trashcan, extended selection, setting Preferences and the Info screen. There is a list of what the Preference file contains and would be very useful to Programmers.

The Icons

Here it describes in detail the structures of the various icons such as Tools and Drawers. There are two programs called Icon Analyzer and Icon Editor, although this one is less friendly than IconEd on Workbench!

Error Trapping

This chapter concerns errors and how to prevent them particularly those concerning files, menus and user input. There are quite a few examples including one which creates its own system requester (which would come in handy).

Effective Programming

Here it goes into the business of making your programs run faster and being more effective. It includes a series of Benchmark programs that test things such as Variable types, multiple or single statement lines and subroutine positions. There is also a program that can create a universal and smaller bmap file to save loading time and memory (which I think would be very useful because I am sick of having to put paths in LIBRARY statements).

Machine Language calls

In this tiny chapter there is only one program that demonstrates how to use machine code routines from Basic. This program blinks the Power L.E.D.!!

Input and Output

This chapter is about Disk Drives and Memory in particular. There are two programs: a Disk Monitor (to view single sectors) and a Memory Allocator.

Conclusion

Before I forget, there is also a Disk available with all the programs on it, so that you can test them out straight away. According to the publisher they've been tested so I'm not sure if the Brush Transformer program works (please could someone find out if it does!). Now, would I recommend this book? well, a guarded yes! Guarded, because of the printing errors and particularly the Brush Transformer program, I think this would be a valuable book to any serious programmer and I would take a good look before buying! This book and disk can be purchased from 16-Bit Software, 24 Banksfield Lane, Norden, Rochdale, Lancs OL11 5RJ. The book costs £14.95 and the disk £9.95.

CW'S MUSINGS

by Chris Wright

Well, the new Fat Agnus is out, but it will cost you an arm and a leg. Some of the B2000 machines now shipped include this chip as standard and this is indicated by an orange spot on the outside of the cardboard container. The benefit of the new Agnus chip is that the second 512K of base memory (or the expansion memory module if you have an A500) will become 'Chip' memory instead of 'Fast' memory, thereby enhancing many graphics oriented programs. If you type AVAIL from the command line, the result will indicate whether your second 512K is 'Chip' or 'Fast'. Older 2000s and the A500 can take advantage of this expansion if the new Agnus chip is fitted. Fitting the chip involves altering jumpers on the main PCB, and (for PAL systems) cutting a track. If this surgery is not performed, the computer will revert back to its barbaric NTSC ancestry and will not work correctly. I have imported a quantity of the new chips, and have detailed instructions on how to install them. I can perform the installation for you, if you wish to send me your computer. You must, of course, pay the carriage to and fro.

This new chip is not without its own set of problems. Whilst the new Agnus will convert the A501 into 'Chip' memory, you will sometimes need to have additional 'Fast' memory as well, since some software specifically checks for its presence. Life always has its problems. Anyone with the brass and the motivation please contact me.

WPs - The final comment

Most of you reading my drivel will know that I have waxed long and hard about word processors on the Amiga. I have now laid my pen to rest on this subject as I have found what I would consider the best word processor yet. True it does not work in graphics mode [if it did I wouldn't be using it! - Ed], but then again, fancy fonts may be ok for a single sheet letter, but major text usage needs a good, reliable, fast, user friendly, powerful program. Word Perfect is over the top in all these, and unless you are writing a thesis or book, is far too much for the ordinary person. The easy answer is Protext. It has all the qualities one looks for and is inexpensive! Contact the Discount Officer if you want a real bargain. It really is worth the money.

GEOS GEMS

by Jules Bourne

GEOS V2.0 An Enhancement or a Disappointment.

Geos, that amazing operating system for the underprivileged 8 bit fan has been upgraded to V2.0. Berkeley Softworks have done it again. Anyone familiar with it from the V1.3 or earlier guises needs no introduction and anyone not, should seriously consider buying it or at least reading one of the many earlier reviews. In this short diatribe I do not intend to put the dampeners on this system but at least ask you to take a step back and ponder.

From the outset it must be apparent that Geos was written primarily for the US market and as the poor relation we just about get by.

Well enter GEOsoapbox.

Not at the moment an answer to the holes but a poser to both Berkeley Softworks, any of the main Distributors and any budding GEOprogrammer. Let me enlighten you. V1.3 had a UK variant that although not the be all and end all, at least went some way to allowing us residents of the UK to use our full UK keyboard. Yes that dreaded currency symbol much loved by Mrs T and belittled by Sir Leon in favour of the ECU, the £ sign was allowed to function.

Geos V2.0 is so obviously a US import that the £ will not function. So that wonderful utility GEOfont, that allows me to amend or create my own fonts, has been a waste of money and time. Many hours were spent adding the £ sign to my fonts, including those on Font Pack 1 and Font Pack Plus. Do I now put all of these into that newly designed V2.0 wastebasket?

Hands up all of those that own a NEOS mouse. You know the one Commodore gave away in their Connoisseur Pack in preference to their own 1351 variant. Ha! won't work on Geos will it? Berkeley Softworks, true to their word have continued the research and development and produced a new mouse driver. It's called the 1351(A). Yes that's right it's an upgraded of their original driver only faster. No NEOS this time. Perhaps V6.3!

07/06/88. That date stares me in the face everytime I initially load up. Of course the 7th of June 1988 was an auspicious date for Berkeley Softworks so they have written it into the program. Sorry, it's the 6th of July that was important. Glad the year is obvious; what will we see in 2001? So many combinations to choose from. Use GEOblackjack the odds are more in your favour.

As I edge even closer to tears and find myself teetering on my GEOsoapbox, we must not forget that superb desk accessory GEOdex, in which we can store our American friends addresses. Is a ZIP CODE something I find as a reorder number on the fastening of my trousers? This product in my opinion comes very near to breaching the Trades Descriptions Act. It should not be sold in this country without clear warning as to its limitations. Berkeley Softworks even acknowledge that it will not properly function outside the US by removing the Autodial facility. Hardluck Modem Users.

Ah Modem Users. Geos is the perfect medium for communications. Bulletin Boards, Laser Writer Dumps. I am naturally refering to Quantum Link. A demo disk is supplied with V2.0, it makes a good disk to use while following instructions to make backups. Nice thought but as I need one for GEOwrite, one for GEOpaint and one for the extras that overload the memory, could they please include to more spare disks on the next upgrade. As Geos has sold 1000's of copies in the UK and obviously makes a lot of money for the main distributors, could not one of them offer a UK substitute for Quantum Link so that we can enjoy being other than isolated and mute.

At between £32 and £39 a copy geos V2.0 is an excellent buy, but couldn't Berkeley Softworks issue a UK upgrade disk with all these holes filled in. Well thanks for listening, I'll just double click my GEOsoapbox Icon and put it to bed until later.

GEOstop-press, I've now written again to Berkeley Softworks and the main UK supplier and hope to be able to give their response next time round. Happy Double Clicking.

PS My Becker Basic wont work with V2.0 and GEOspell doesn't like my Datel Turbo II ROM.

ICPUG SOUTH EAST NEWS

by Janet Bickerstaff

Although at our meetings on Thursday evenings talk of computers dominates the scene, we do have a social side to the club. One Friday evening in August a 'Summer Feast' was held at The Willow Chinese Restaurant in Selsdon. It was altogether an excellent evening and in deference to the ladies, computers were scarcely mentioned at all! There was a surprise for the Chairman, who was celebrating his birthday, when a dish was set before him complete with lighted candles, accompanied by a tuneful rendering of 'Happy Birthday'! The food was excellent, and it was not until 11.30 that the party finally broke up.

For our lecture night in August Joe Griffin, the ICPUG Software Organiser, came to talk to members about all aspects of the library, from PC software right through to the programs available for the PET and the VIC. Joe put the South East Group magazine on the map when Commodore Computing International asked for permission to reprint his article on Vapourware. It just shows that our magazine reaches parts that other magazines do not reach!

On 21st September Simon Tranmer, of Precision Software, will be telling us about Programming for Portability (Windows), and on the 19th October Dave Parkinson of Ariadne Software (and 'Kickstart' Guide to the Amiga fame) has as his title 'How the Amiga Works and Tricks that you can pull with it'. I think he has a lot to cram into two short hours! Our members will be paying keen attention to this lecture as the North Kent ACC has issued a challenge - Amiga v. Archimedes. This vital match is to be fought out at Biggin Hill Library on Thursday, 23rd November, and the two teams are already sharpening their wits!

An annual event, not to be missed, is Mick Ryan's Presidential Address on 9th November. Mick formed the Club way back in June 1980 and, although he is no longer able to attend regularly, we made him President for his efforts and welcome him warmly when he is able to come.

In October a lively group are setting off on another long weekend visit to the Pyrenees and Lourdes; that is if we get off from Gatwick before it is time to come back! It should be fun anyway. December 14th is the date of our Christmas Party at the Library, to be continued later in our usual hostelry, The Black Horse, just along the road towards the airfield.

South East Group welcomes members new and old to their meetings at the Library, Biggin Hill, Kent, any Thurday except the first Thursday of the month. Meetings start at 7.45 pm and end at 9.45 pm. Why not come along?

AMIGA - TAKING THE PLUNGE

by Keith Mercer

Background

Back in 1982 it seemed to me that in future there would be two types of people, those who were computer literate and others. In the hope of at least making myself familiar with the operation of computers I bought a VIC 20 and began to learn the intricacies of BASIC.

The VIC was replaced in November '83 by a 64 and in early 1984 I joined the fold, so to speak, becoming a member of ICPUG. 1984 also saw the arrival of a 1541 disk drive and an Epson RX80FT printer (connected through a Micrografix MW350 interface, an excellent and versatile device). Joining ICPUG was one of the best things I could have done regarding increasing my limited knowledge of computers and computing. I marvelled at the way the stalwarts of ICPUG could delve (as Mike Todd did) into the depths of the 1541 ROMs and produce articles from which even I could gain a glimmer of understanding. For the most part, my computing settled into writing the occassional BASIC program for my own use and lots of word processing using Easyscript, with bursts of flying activity on Flight Simulator II.

Within the constraints of a 40 column screen, the combination of the 64/1541/RX80/MW350 interface and Easyscript provided for my needs. Anything that the Epson could produce, from draft through enhanced, elite, condensed, super/subscript to German umlauts and French accents could be printed via embedded commands. However, as my wife took on more and more freelance language teaching commitments and needed to produce reams of teaching material, the drawbacks of the 40 column screen and the frustration of having to toggle between the normal screen (with embedded commands) and the 'output to video' screen to see what had happened to the layout became too much. An 80 column screen and WYSIWYG layout was deemed essential.

Over the last couple of months, much reading of magazines and brochures, visits to shops and questioning of computer owning colleagues has been taking place. The aim? To decide whether a PC compatible, an Amstrad 9512 or an Amiga would replace the 64. After much heartsearching, procrastination and budget shuffling, we plunged for the Amiga 500.

Coming to terms with the Amiga

At the time of writing, we have had the Amiga for a mere 3 weeks, but what weeks! A package deal was struck with a small dealer some 30 miles away who offered good value for money and none of the potential pitfalls of buying by post. We purchased an Amiga 500, the KindWords word processing package, blank disks and a printer cable. The dealer pointed out that although KindWords worked with 512K, we would probably soon find ourselves in need of memory expansion and a second disk drive. How right he was!

After almost five years of using the 64, I found the way in which the Amiga operated to be somewhat bewildering. Problems came thick and fast, some admittedly self inflicted and caused by making assumptions based on my experience with the 64, others caused by faulty software, poor instructions and what ultimately turned out to be a faulty disk drive. Naturally, as the main purpose in spending a sizeable sum of money on the Amiga was for word processing, getting KindWords up and running was the main priority.

KindWords consists of a 70 page manual and three disks, namely Program, Superfonts and Dictionary. After backing up the disks and putting the originals safely away, connecting up the Epson via the parallel port and loading the program disk, word processing trials began. Deadlines for production of teaching material were looming and a smooth transition was hoped for. Some hope. A data disk was created, trial document typed and saved, then 'Print' selected from the pull-down menus. The result of this innocent action was quite dramatic - a total system crash and Guru message, all quite incomprehensible to me. Why had selecting print produced such a calamitous effect? An agitated phone call to the dealer was made and his first question was "have you transferred the correct printer driver from the Superfonts disk?" Well, no I had not, but there again there is absolutely nothing in the manual to say that I should. The print menu offers a selection of draft, final or Superfonts. The document had been typed in the default Roman 12 font and draft selected for the print out. To those acquainted with how an Amiga works it may well seem obvious that I should have loaded the Superfonts disk (Superfonts? I didn't want super anything, just a draft print out), clicked on the Preferences icon, selected Change Printer etc, etc but to someone new to the computer and software it wasn't at all obvious. Anyway, why should selecting print have caused a system crash? Surely there should be error trapping of such mistakes. However, with the dealers help, that little problem was overcome.

It may well be that the above fault was peculiar to my particular disk.

Later in the week, having discovered the delights of Shell and CLI, I found in the root directory files named 'System' and 'System.info' yet there was no appearance of a 'System' icon in the KindWords window. There again, it could all have been the fault of the built in disk drive. Towards the end of the first week it became obvious that whenever a disk was written to, the next attempt to read it would produce a read error. In fact, one disk became so corrupted that re-initialising it failed to clear the corruption and its' icon appeared labelled 'DF0:NDOS'. The decision to buy from a relatively local source now paid dividends, in that with only minor hiccups, the faulty Amiga was exchanged and the KindWords program disk replaced. (TC Computers of Wantage, tel 02357 60177).

It is far too early to attempt a review of KindWords. Initial thoughts on it are that it is somewhat idiosyncratic and absolutely eats up memory. In its favour it gives us what we set out to obtain, namely 80 columns (well, 76 to be exact) and WYSIWYG layout at relatively low cost for the software. However, to use the versatility that it offers, memory expansion and a second disk drive are almost a must. Perhaps, if access to the computer is available, a review may be possible for the next edition.

In the mean time there are intriguing questions to answer, such as, with 512K of memory why does Mike Todd's routine (Vol 9 No.1 page 46) to transfer the contents of the C directory from the Workbench disk to RAM: result in a 'RAM: full' message, before all the commands have been transferred? Using 'INFO' from the CLI showed the size of the RAM: disk to be 194 blocks. I thought the RAM: disk was as big, or as small, as required. Why does selecting print from KindWords or Notepad cause my printer to output a 0 (zero) at the top left corner of the first page, followed by a 1 on subsequent pages? This is using the EpsonX drivers, specifically recommended for my RX80. Using EpsonX_Old driver stops the 1's being printed but it persists with the 0. These and more exciting questions (but no answers) in the next edition.

MULTISYNC AMIGA

by Bob Martin

What's this about an enhanced graphics chip set? No screen flicker in high resolution mode! Lets have a basinful. Problems? Well to start with the chip set will not be with us for a little (Commodore) time, but if one is about to buy a monitor I feel some consideration should be given to spending only one amount of money!

Current monitors must scan at 15.625 KHz. But to use the new high resolution non-interlaced mode the monitor must also scan at 31.25 KHz. The only monitor I could find capable of doing this was a multisync. I chose the NEC Multisync 3D. This monitor will accept both TTL and ANALOG signal input. However using TTL restricts the number of colours displayable so I wished to use the ANALOG input. This raised the question of signal compatibility. The NEC 3D requires 0.7v positve RGB signals and 0.3v sync. signals but unfortunately I could find no data on the video output from the AMIGA. I contacted Tom Cranstoun who informed us that Tim Arnot was a monitor Guru. A call to our friendly Editor elicited the fact that the AMIGA ANALOG video signals are 0.7v RGB and 0.3v negative sync.

As everything seemed suitable I installed the NEC Multisync 3D with our AMIGA 500, as follows: The monitor comes with an IBM VGA 15 pin high density D plug already fitted to the video lead so I chose to make up an adaptor lead rather than alter the lead itself. Doing this required:-

1 - 23 pin D socket and cover. (Solder buckets)
1 - 15 pin High density D socket and cover. (Solder buckets)
1 - 6 inch length screened 9 way cable. (Maplin)

Connections were soldered with a fine tipped iron as follows:-

Colour	23 pin D skt.(to)	15 pin HD. D skt.	
Red	3	1	Analog RED
Green	4	2	Analog GREEN
Blue	5	3	Analog BLUE
Orange	11	13	Horiz. Sync.
Voilet	12	14	Vert. Sync.
Brown	16	6	Ground
Black	17	7	Ground
White	18	8	Ground
Yellow	19	4 and 5	Ground
Screen	20	10 and 11	Ground

I thouroughly checked that the connections were correct and there were NO shorts between pins. Next I wired the mains plug to the supplied lead fitting a 1 amp fuse. Our adaptor was plugged into the Amiga Video socket, the lead from the monitor into the 15 pin HD D socket and the mains lead into the monitor. I switched on the computer and then the monitor - Hey presto! I could now see the Workbench disk hand icon.(Off centre).

This is a micro-controlled monitor which remembers the last settings of the controls, which I found best as Mode ON - Color AUTO - adjusting size and position controls to suit.

The monitor gives crisp images with good colour rendering and plenty of brilliance and contrast range. It can be recommended with only one reservation - the price. But if you have access to an IBM compatible with enhanced VGA, this monitor can fill two roles.

C-128 LIBRARY

by Chris Wright

Last time I mentioned that there were 100 PD disks being looked at. Bob Daly has been grafting away on these and has compressed them into 28 disks for the library. There is a version of PrintMaster on CP/M disk CU25 - 1571/1581 only. Of the 128 mode disks he has produced 5 Telecommunications disks, 5 Recreation, 5 Utility, 3 Education, 3 Arts and Paint, 5 General and 1 Ham Radio. This has been no mean feat for Bob and I cannot thank him enough for his time and effort. Those wanting to see what is on these disks should send a disk to your copier and ask for the latest catalogue disk (1541 owners will need to send two disks). Material has been received for the Superbase/Superscript disks, and these will be placed in the library soon.

WORKBENCH 1.4 - A SNEAK PREVIEW

by Tom Cranstoun

In June the Amiga Developers Advisory Board (ADAB), with co-operation of Commodore Amiga Technical Support UK (CATS) held an Amiga Developers conference at Nottingham University.

Amongst the many speakers were Gail Wellington and Carolyn Schepner, of Commodore USA fame. These ladies are experts on the AMIGA scene and their presence at the conference was well received. Gail explained future developments on the Amiga; Carolyn explained some of the programming rules to ensure that commercially developed software would survive the transition to future releases of Kickstart and Workbench.

It is fair to Commodore to say that the following items may not make it into the final 1.4 release, commercial development constraints being what they are.

WB 1.4 will feature a more professional image, CBM are removing some of the 'cutesy' features such as 'GURU Meditation errors' - these will be replaced by informative text messages. The Full/Empty disk 'gas gauge' at the side of directory windows will be replaced by text in the window title bar. Drawers that slide open when clicked, trashcans that have hinged lids - these will be options in the future.

Directory windows may show either Icons or a textual directory listing - sorted by file name; file size or file date. WB 1.4 will feature 'concurrency' or improved multi-tasking. Today you must wait until all of the Icons in a window are displayed before you can activate a new one. Not very smart for a multi-tasking computer; very annoying when the first Icon displayed is the one you want. Concurrency changes this - you may continue to use Workbench whilst a drawer displays on the screen.

Preferences will change too. Manufacturers may create extensions to preferences. Any file on a disk may become a 'preferences' style file using a feature called notification. Notification allows interested programs to say to Dos "tell me when file xxxxxxx has changed" - programs do not have to keep looking at file configuration info anymore; they will automatically notice that you have changed something.

Arexx

The Arexx software integration language will be added to Workbench as standard. Arexx was created, for the Amiga, by William S Hawes; from the

original language (REXX) by IBM UK's Mike F. Cowlishaw. Arexx is a programming language which may address multi-tasking programs and combine them into a fully integrated environment. Many Amiga programs currently support Arexx. Consider Superbase and Superplan, from Precision Software, it is possible to write a macro in Arexx which will pull information from a database - present it to Superplan and cause a graph to be drawn. With further support from friendly Arexx aware programs the graph could be pulled into a paint program, embellished as desired and then output onto overhead transparency film. Awesome power. congratulations Commodore. You may purchase this program now to get the benefits now. If you write programs now it is essential to consider putting Arexx support in now.

Commodore are changing 'fonts' system. WB 1.4 will support scaleable fonts. scaleable fonts allows the system to generate new fonts in a different size from the base font. Commodore will continue to support the original font specifications as well.

Bye bye BCPL!

WB 1.4 will feature a re-write of most of the commands in the C: directory - previous implementations were written in BCPL. BCPL is little understood in todays world; better support can be given when the commands are re-written in 'C' programming language.

It looks like the 'lets kill BCPL' crowd have won the day. WB1.4 is the last release to support BCPL style structures. This won't mean much to users. Programmers will have to adjust to the change. This change won't finally take effect until WB1.5 (are we starting to talk about that now??) CBM will provide a new enhanced DOS.LIBRARY which eases the transition for programmers.

Record locking is being added to this new library. This allows multi-user database access. Multi-user database access???

Commodore are developing a networking interface for the Amiga. They have also announced support for a multiple port RS-232 serial card, driven by a 6502 no less. This will allow developers to connect many dumb terminals to an Amiga system. Probably of more use to AMIX users. AMIX is Commodore's implementation of UNIX for the Amiga (another article; in another time; by another person). Though I have no doubt that some one will make use of multi user dumb terminals on an AMY.

New 'devs:' 'fonts:' 'libs:' access mechanism. How frustrating it is to provide temporary fonts, libs, or devs etc, to the amiga.

1) Assign Fonts DF1:Fonts
2) Run Application
3) Assign Fonts Sys:Fonts

etc. Fine if you have one of the PD font changing tools. No such tools exist for libs: devs: etc though. I personally do not like to add to my systems libs: drawer unless I know where the lib came from. Tediousness rules.

WB 1.4 to the rescue. It uses a more intelligent search mechanism when it cannot find system directories. It looks around. Scanning all attached devices (df0: df1: dh0: dh1: etc) to see if it can find a Fonts: (or whatever) directory. If it can it uses that directory. Simple. Why didn't they think of it before?

WB 1.4 features standard requestors etc. A bit like ARP. It features tools for programmers that will mean that all programs will be easier to learn. Although the Amiga has a consistent user interface not all programs choose to use it. WB 1.4 will ease the learning curve for programmers. This does not mean that they will use AMY features more. It just increases the chances.

WB 1.4 will see a very professional environment for Amiga owners. It will be compatible with all that went before. It will be more integrated. We look forward to it with great excitement. Thank you Commodore.

HELLO MEMPHIS!

The Memphis Commodore Users Club is an 8-bit [Makes a change from 7½ eh Joe?] club in Memphis, Tennessee (not Egypt). We have just received a copy of their library catalog(ue) and will be sending them a copy of our own catalogue and copies of the Journal. As they have access to the extensive communications facilities in the U.S. (Q-Link, CIS etc.) we hope that we will be able to provide our members with much of the new material that is currently appearing. We look forward to a long and prosperous association between our two clubs.

FOLLOW UP ON A REVIEW OF THE PC1

My review of the PC1, published in the July/August edition of the Newsletter, was deliberately written in my early days with the machine, as the impressions of a new buyer. In it I raised queries to which, between my writing of the article and its publication, I discovered most of the answers. Many of these solutions were given to me by the PC1 Users Group, the brain child of Norman Keylock. He acts as an informal focus for the exchange of information between users, passing information amongst correspondents who write to him.

The queries I raised were all to do with the ways of expanding the system, as I felt that the Commodore documentation was inadequate in this area. I soon traced the source of a mouse, and purchased the Commodore 1352 mouse, which came complete with the Microsoft mouse driver software. This connected directly to the mouse socket, was adequately documented, and worked without any problems. My dealer's earlier comments about the non-availability of the necessary software proved false.

I have not yet purchased a hard disk or card, although I probably will soon. However, I have confirmed that, as I had been led to expect, an expansion box is required. Indeed one was advertised in the May/June edition of the Newsletter. It is possible to add the expansion box and a 20 Megabyte disk or card for something in the region of £300. A friend of mine has done this with no problems, although the separate expansion box does lead to a rather untidy footprint.

Equally I have still not expanded the RAM to 640K, although I have now been told that the RAM chips are readily available. Apparently these should be 4 x 64 Kbit, 4464 type with 18 legs, and not the more usual 4256 type with 16 legs. I quote, not having investigated the truth of this since I was given this information. I am also told that opening the machine to fit the chips does not invalidate the guarantee.

Commodore have confirmed that my formatting problem, which I also mentioned, is a fault of my drive, and not the PC; bad luck for me, but at least indicative that adding an external drive should be easily achievable normally.

In my review I intimated that I considered the PC1 good value for money, but raised concerns about the documentation of its expandability. My further investigations have shown that expansion is easier than I had first thought. However, if a hard disk PC is the ultimate requirement, the costs advantages are substantially reduced by the requirement for an expansion box.

NEW ROMS AND OLD

by Sergeant Michael McAnulty, 3 Squadron, 21 Signal Regiment, BFPO 42

I read with great interest an article by Bavin Clarke in the last issue of the Magazine. This covered the replacement of the 1.2 ROM with the new 1.3 ROM. I have to question the wisdom of this, in view of the vast number of programs (admittedly most of them are games) which will not run under 1.3. The obvious solution would be to have both ROMs available at the flick of a switch. As an A500 (1.2) owner who has a 32 MB Hard Drive, I have already prepared for the day when I can lay my hands on a 1.3 ROM. The following description of how to install both ROMs in your Amiga should not present any problem even for those with little technical knowledge. The ability to use a soldering iron is the only requirement. The purchase of a 40 pin DIL socket, two 3.9 K Ohm resistors, one changeover switch and some wire are the only outlay.

Technical details

The Kickstart ROM for the A500 is located in socket U6, socket U500 for the 2000. The 1.2 and 1.3 ROMs are pin for pin identical. Pin 10 of each ROM is the Chip Enable line. This is an active low line and therefore must be at 0 volts when the ROM is working. Taking the line to 5 volts will cause the chip to be invisible to the system. My modification involves switching Pin 10 of each ROM either to 0 volts or 5 volts depending on which ROM is required.

Remove the 1.2 ROM from the computer and put to one side in a safe place. Remove the tenth pin from the 40 pin DIL socket and discard. Gently straighten out pin 10 on both ROMs. Turn the 40 pin DIL socket upside down and lay the 1.3 ROM inside it. Make sure you align them correctly. Pin 10 of the ROM should fit through where the pin has been removed from the DIL socket. Now solder the ROM and DIL socket pins together taking care not to solder too low on the ROM pins which will go back into the motherboard socket. You should now have a 1.3 ROM with a DIL socket riding piggyback on it. Connect a length of wire between pin 11 and the centre position of the changeover switch. Insert the 1.2 ROM in the DIL socket. The reason that we insert the 1.2 ROM in the DIL socket and not the 1.3 is so that the 1.4 ROM can be easily installed when it becomes available. By that time, software houses should have stopped using illegal calls directly in to the ROM. The outside pins of the changeover switch can now be soldered, one to each ROM pin 10. At the same time, a 3.9 K Ohm pull-up

resistor must be soldered from each pin 10 to pin 21 (5 volts) of the 1.2 ROM. Finally, replace the assembly in the Amiga motherboard. If you have followed the instructions carefully, then at power on time you should see the familiar hand. It still says 1.2? Then flick the switch and do a three finger reset and voila! 1.3 in action. If neither appears then re-check your wiring. Finally, if you are unwilling or unable to do this modification, then I will oblige for a small charge. Please write to me at the above address. Anyone got a spare 1.3 ROM going cheap?

[Disclaimer: This project voids your warranty. If you are not careful it may void you. ICPUG does not guarantee that this procedure works, nor that your computer will work afterwards. If it breaks, it's your problem.]

WRITING WITH VIZAWRITE CLASSIC - REVIEW

by Joe Griffin

Computer documentation is, as we all know, terrible. Often we spend ages hunting through a manual, trying to find out how to do something quite simple. Oh, it's in the manual, sure enough, but hidden away and indexed by some term that you'll never think of.

Manuals are usually written by the same people as wrote the software. These people already know how to use and get the best out of the program, so what the manual seldom tells you is how not to use the software.

Peter McDonald's book "Writing with Visawrite Classic" is best described as a companion to the Visawrite manual (which was indeed written by Kelvin Lacy, the author of VW). It is refreshing to see, early in the booklet, a description of the loading sequence, including a description of what to do if the program does not load.

In summary, this booklet is to Vizawrite what Bruce Hunt's book is to Superbase. However at £10 for the slim booklet (plus a companion disk, which I have not seen), the price is a bit steep.

"Writing with Vizawrite Classic" is available from Financial Systems Software Ltd., Masons Ryde, Defford Road, Pershore, Worcestershire.

SEVEN-AND-A-HALF BITS (What no comment?)

by Joe Griffin

A Black Mark for Commodore

I sent a copy of my article on 128D/1571DCR bugs to Commodore at both Maidenhead (to the MD, Steve Franklin) and to West Chester (to Fred Bowen). Neither party has bothered to respond, not even a letter to acknowledge receipt or say they will look into it. I am extremely sorry that Commodore choose to turn their back on the user like this.

A Gold Star for Creative Micro Designs

Having been informed by Tim Harris of Financial Systems Software that the 1571DCR bug also existed in the JiffyDOS ROM, I sent a copy of my article and a disk containing the test program to Creative Micro Designs, the authors of JiffyDOS. In mid-July, I received a letter from Mark Fellows, President of CMD.

In his letter, Mark comments that "The exact cause of the problem is surprising (but not that surprising if you are familiar with the way Commodore does things!). A comparison with the upgraded (V5) ROM revealed that Commodore fully intended for the C-128D drive ROM to be bug-free. All the required changes made in the 1571 V5 'fix' ROM are present in the C128D ROM ... EXCEPT THREE!!"

In order to fix the C128D ROM, the only thing required was to put the missing three patches into place. The C128D DOS now functions flawlessly.

Mark has commented on some points in my original article and has given me permission to repeat those comments.

* The 1571-CR drive in the 128D does include custom circuitry and this is why the V5 ROM was not 100% compatible.

* The stand alone 1571, and that in the 128D Portable machines, does have a WD 1770 controller but its only function is to read/write MFM encoded data. It is NEVER used with a standard Commodore formatted disk, even in burst mode.

* The 318047-01 ROM (fitted in the 128D) is not a Version 8 ROM, but is a V5 ROM, adapted to the new circuitry, but with the problem of the "missing patches" mentioned above. To Mark's knowledge, Commodore has no plans for developing or releasing a Version 8 1571 ROM.

* The 318047-01 ROM is not a "stop-gap" version. It is a ROM that one of Commodore's programmers messed up. The reason that a corrected ROM has not been released is that Commodore had produced a very large quantity of defective ROMs before the problem was discovered. Naturally, Commodore are not interested in scrapping a million-dollar inventory of 318047-01 ROMs, so they continue to install them in 128D's. It should be noted that the 318047-01's are "mask" ROMs and are NOT re-programmable. If Commodore ever use up their stock of these, then maybe a fixed version will be released.

Included in the package was a JiffyDOS V5.10 drive ROM for the 1571. This was quickly installed in my 128D. (I can now get the chips in and out with my eyes closed!) The first test given was the Greg Perry program which ran faultlessly. Remembering the success of the V5 ROM with this test, I then ran Big Blue Reader, which had hung with the V5 ROM. To my great delight that and all other programs I have used have worked with the JiffyDOS ROM. In fact, if this drive ROM is fitted to the machine, and not the full JiffyDOS system, then the system is almost transparent to the user. There are only two differences apparent, compared to the stock ROM. The first (obviously) is that the side 2 BAM problems are now fixed. The other is that formatting of a disk in 1541 mode is now carried out at 1571 speed (see my review of JiffyDOS elsewhere in this issue).

The good news for owners of 128D Desktop machines is that the V5.10 JiffyDOS ROM is now available either as a fix-it ROM or as part of JiffyDOS from Financial Systems Software Limited (0385-553153).

1541 ROMs

Since publishing drive identification information in this column, I have been contacted by a number of owners of very early 1541s. On these machines, location $ff15 in the drive ROM contains the value 170 ($aa). This area of the chip was unused, so a fill byte was put in there. Later versions of the 1541 incorporated a patch which was put into the free space and hence the value has changed.

1581 Bugs

True to form, Commodore have managed to introduce a smattering of bugs into the 3.5 inch drive. On the hardware side, very early models are reputed to have a WD 1770 controller. This could give corrupted directories during disk copying. A public domain program is available (I have a copy) which checks whether the 1770 or 1772 chip is fitted. Anyone who finds that their 1581 contains a 1770 should consider getting it replaced with a 1772. FSSL have more details on the upgrade.

On the software/firmware side, the 1581 is not blameless either! Problems can occur in creating sub-sub directories (though I have not experienced this problem) but of major concern is that because of a bug associated with the track cache buffer, block allocate commands do not work, if a block write is carried out at the same time.

The problem can be demonstrated by using the program on page 75/76 of the 1581 User's Guide. Type in the program and run it a few times on a blank, formatted disk. Then display the directory of the disk, the 'blocks free' should be a few less than the 3160 of an empty disk. Now remove the disk from the drive and re-insert it, then again list the directory. The number of blocks free has mysteriously gone back up to 3160! If you look at the sectors which should have been written, you will indeed find that the data in them has been altered but they have not been allocated.

During the production of Superbase 3 for the 1581 a number of problems were encountered. Data written to the disk mysteriously disappeared. Eventually it was found that, because of this bug, the 1581 DOS was only updating the data sectors and not the BAM on the disk. Simon eventually got details of an address in the 1581 ROM which could be used to force a BAM update. I will publish details if I can get them.

For interest, it is worth noting that if a block allocate command is carried out without writing data to the sector, then the BAM is correctly altered. I suspect that the problem comes about because the track buffer does not rewrite the bam if a sector other than on the directory track is to be rewritten.

Files, Directories and Direct Access

Unlike most other floppy disk systems, Commodore 8-bit disk drives (with one notable exception, the 1581) do not use the Modified Frequency Modulation (MFM) recording method. In the early days of the PET, Chuck Peddle's team devised the Group Code Recording (GCR) method of encoding

the data onto the media. This allowed a higher storage capacity and a greater reliability than contemporary units.

The distinguishing features of these GCR drives include a variable number of sectors per track. The outermost (longer) tracks have more sectors than the innermost (shorter) ones.

On all drives, including the 1581, a directory of the files (including pointers to the actual file data) established by the disk operating system (DOS) is maintained on its own track, about half way across the disk surface. A record of the used and unused disk sectors, known as the Block Availability Map (BAM), is maintained by the DOS and uses one or more disk sectors on, or adjacent to, the directory track. Even though unused sectors of the directory track are not allocated in the BAM, DOS considers this track to be inviolate and will not use it for storing data.

Each sector in the directory, or in a file established by the DOS, contains as its first two bytes a pointer, comprising the track number and sector number of the location of the next block of the file. These pointers are maintained by the DOS, as is the BAM, and are of no importance to the user, provided that all disk accesses are via files of a type supported by the DOS.

Commodore have however provided routines which allow the user to access disk sectors directly (direct access programming). When this is done, as with machine code programming of the CPU, the user is given great freedom but carries a heavy responsibility. No housekeeping is done; track and sector links are not provided and the BAM is not updated, unless the user specifically carries out these tasks. Also the direct access routines know nothing of and care little for the sanctity of the directory track. It is by use of direct access routines that a directory can be modified, or even linked back into itself, to become endless.

When a direct access 'Block-Allocate' command is given, one of two things will happen; if the sector addresses is unused, it will be marked as used in the BAM. However, if it is already used, then an error message will be generated with the location of the next available sector contained within the error string. The 'next' sector will always be later on the same track, or on a higher numbered one.

To create a direct access file with linked sectors requires something like the following procedure:

* Allocate the sector.
  If already allocated, get next sector data and allocate that.

* Allocate it a second time.
* Read error string to obtain address of next free sector.
* Place pointers to next sector in data buffer.
* Place remainder of data in buffer.
* Write buffer to the original sector.
* Repeat for next sector.

When less than a full buffer of data is left, the track link is replaced by a zero byte and the sector byte by the number of bytes of data to be written.

This is obviously quite a tricky method of working and requires quite a lot of disk accessing. For Superbase, Simon & Tom devised a simpler method of working, which is quite ingenious - they write the file backwards!

The directory entry points, not to the first sector, but to the last and each sector points back, not forward. To add a further sector requires that the program finds the first free sector after that pointed to by the database file header block. The pointers required are already known from the header, so this block can be written and allocated. The header block is then updated with the address of this new current sector and a consistent file chain has been established.

Problems do however occur, as mentioned above, with the directory track. On a 4040/1541 format disk the directory is on track 18. Imagine the situation as direct access fills up track 17 - sectors are allocated in the order 0,1,2,...,18,19,20 but then the end of the track has been reached. The next available sector is the first free one on track 18 (the directory track). A smart programmer would include code to check the track number and if it is 18, increment it before writing any data (this is what S&T do in S'base). A very thorough programmer would also reset the sector counter to 0, so that it continues from 19,0 (often 18,0 [header] and 18,1 [directory start] will be the only blocks used on track 18, so S'base frequently continues from 19,2).

Obviously when different drives are used, the program needs to distinguish the type of drive in use and avoid the appropriate directory track(s). For example, the following disk systems are the common ones:

Disk Drive	Directory Track
4040,1541,1570	Track 18
1571	Track 18 AND Track 53
8050,8250	Track 39
1581	Track 40

ANI-Magic
THE VIDEO SPECIALISTS
Finance Available Now!!
£69.95
DIGIPRO
BOOK NOW! For our next Video & Graphics Weekend Course
Pro Video Plus £249.95
Video Effects 3D £159.95
Photon Paint 2 £79.95
Deluxe Paint III £79.95
DigiPaint 3 £79.95
Platinum Works! £179.00
Publishers' Choice £ 99.00
Professional Page £199.95
Pagestream £199.95
Phone 0703 703030
X-CAD Designer £99.95
Professional £299.00
Amiga 2000 XT HD System from only £16.29 pw lease-hire
A500 Starter Packs from only £3.77 pw hire-purchase
Written details on request
Superpic £569.00
HP PaintJet £914.99
DeskJets £579.00
Star LC24-10 £343.85
Call for your FREE video info pack!
DIGIPRO LIMITED
0703 703030
Enterprise House, Howards Grove, Southampton SO1 5PR
All Prices Include VAT
Orders over £50 Postage & Packing Free
Add £1.00 Postage & Packing for all other orders
Please phone for prices outside the U.K.
Genlocks
8802, 8806, NERIKI MAGNI, MINIGEN and the long-awaited G2
20 MB PC Hard Drives for 2000XT Systems at the absurd price of £169.99
Authorised Commodore Amiga Dealer
Export, Government, MOD and Educational Orders Welcome
Hire-purchase and leasing finance available. Digipro are licensed credit brokers.

Commodore hard drives use Track 1 or thereabouts, but may be more complicated (I don't know much about them).

8 bit switches

In the last issue, Dai Hale wrote about adding device change switches to the 128D. Like him I wanted the option to switch the built-in drive out on occasions. From the Twin-Cities 128 Compendium, I obtained the same information as he got by looking inside the case. However, I used a pair of sub-miniature toggle switches, as they are a lot easier to set and only need a round hole drilled for fitting, not a cut-out.

Spurred on by the success of this venture I carried out what appears to be the ultimate unnecessary modification. I fitted toggle switches to my 1581 which already has DIP switches fitted. The toggles nicely fit one each side at the bottom corners of the back and are wired in parallel with the DIP switches, which need to be left open for the toggles to take effect. The reason for this modification was that I can now change the device number of the '81 by feel, instead of having to disconnect it, take it from its shelf and poke around inside the back with a fine screwdriver.

If you are thinking of fitting switches to a 128D, it is worth considering using toggles as they make switching a lot easier.

Basic 8 Printer drivers

One of our members contacted me some time ago about using his MPS1000 with the Basic 8 package. Although the MPS is said to be Epson compatible, it does not work with the Basic 8 Epson driver and he could only use it in 801 emulation mode. After borrowing an MPS manual from our illustrious Chairman, I found that the MPS does not share the Epson's ability to set all graphics modes from one command using a different index number for each but need separate but similarly structured commands. A fairly trivial change to the source code allowed the driver to modify the printer command string, according to the mode required. This has been tested on my Epson and I assume it will work with the MPS1000 set into IBM mode on the serial bus. If anyone would like a copy, I will happily supply it.

PC LIBRARY

by Don Skene

First of all an apology, the data base discs were inadvertently left out of the catalogue. There are six (for the 360K library):

1. PC-FILE III
2. FAMILY TREE,
   PC RECIPE,
   SIDELINE (flow charts, etc, of dBASE3 programs)
3. PBASE
4. FILE EXPRESS (also on disc 5)
6. PERSONAL FINANCE MANAGER

We have not made it clear that all the library catalogue discs have the same contents, that is, if you ask for a 360K catalogue disc, this will also tell you how the 720K and 1.2M libraries are organised. This means that you can pass on the latest catalogue amongst your contacts without having to write to the copier for a specific format.

I have been asked about library policy. Obviously anything included must be legally available for this purpose. Other than that we are guided by what members say (which is usually a deafening silence). My own inclination is to go for a restricted library of genuinely useful material and not simply to grab anything that is available just for the sake of it. Members then don't have to wade through mountains of doubtful material. I will always be pleased to hear from anyone who can recommend material which they have found useful, efficient and reasonably bug free. I will be less sympathetic to those who say "I don't know anything about this package, but ...".

I would like to comment on 5 programs in the library.

(DOS UTILITIES DISK 2) SCRN: blanks the screen if no keys are pressed or nothing is written to the screen over a preset period of time. The delay can be specified by the user. The original display is restored on pressing any key (such as a shift key) or if a program writes anything to the screen using the DOS interupts. It does not seem to have caused any problems with the resident programs I use. Not surprisingly, it will blank out on programs writing directly to video ram.

(DOS UTILITIES DISK 1) LPTX: the documentation on PC FILE III is compressed and the decompression program supplied with it only writes to a printer, all 110 pages. This was much too expensive just to compose the

catalogue entry! LPTX redirects such printer output to a disc file. If, while LPTX is active, you copy or redirect a file to the printer, the machine crashes and has to be switched off for a restart.

(DOS UTILITIES DISK 2) LIST5: a high speed text file display program with forward and backward pageing and a simple string search. Now included on the catalogue disc for viewing the catalogues.

(DOS UTILITIES DISK 5) FINDSTR: searches a list of text files for lines containing any one of a list of strings. No wild 'cards' for the strings but case sensitivity is optional and filenames can have wild 'cards'.

(DOS UTILITIES DISK 5) XTREE: file management program, with good facilities for deleting, moving and viewing files. Slow to get going on a hard disc because it insists on searching the whole directory system. I found it more useful with floppies where it was much quicker.

IMPORTANT NOTICE

We have a new C-64 'D to H' copier, **Roger Mather.**

DAVID ANNAL HAS MOVED.

BILL GARDNER HAS MOVED.

For all Software libraries, please always use the most recent Journal for the addresses of copiers. We have enough trouble with the Post Office as it is (see Chairman's Chatter). If you do not send material to the correct address, you are tempting fate as to whether you will ever see it again!

ANOTHER IMPORTANT NOTICE

Richard Hunt's Plus/4 has failed. Richard is our Plus/4 and C-16 Librarian. As a result, until it is repaired or replaced, he is unable to provide TAPE copies from this library (Disk copies are unaffected and still available). Repairs are being sought, but are felt to be prohibitively expensive (even if parts can be found). If any member has a Plus/4 they are willing to part with (for a reasonable sum), please contact Richard. His address is in the usual place.

BITS, BYTES AND WORDS

by Brian Grainger

The article on MSDOS last time has not resulted in any new tips to me, although Dennis Gortmans pointed me in the direction of some more articles to read from the PC User Group. I will do so and report in a future Newsletter. Ken Durkin wrote to ask if there were any good books on learning 8086/8088 assembler. He also wished to know if there was any commented source code listings for MSDOS to aid his learning. Although I could not help on the latter, there are many books on programming the 8086/8088. Perhaps, if anyone has a particular recommendation they would let me know.

My comments on getting a full screen Shell on the Amiga, along with a hot key shell, provoked a good deak of comment. His holiness the Editor mentioned the use of upper case in adding the 'WINDOW' tooltype to the Shell icon. Ray Medford also mentioned that the shell name should be enclosed in double quotes. This was also missing from the Workbench 1.3 manual [I'm not surprised, as it's not true (unless you want the quotes to appear in the name!) - Ed]. Gary Brittain wrote with a couple of methods of obtaining a hot key to Shell. First method is to rename NewShell to NewCli. PopCli will now call up the Shell! A copy of NewShell is kept in case any programs, like the Shell starter call it up. Another alternative is to copy Shell and its .info file to RAM: during start up. Shell is then accessed by simply clicking on the RAMdisk icon and the Shell icon, both very fast. The appropriate copy command is:

```
COPY DF0:SHELL|SHELL.INFO RAM:
```

A third method of getting a hot key shell is to obtain PopCli V1.3. This allows a hot key to CLI or Shell depending on the parameters used in calling PopCli.

Dennis Gortmans wrote to tell me of another Amiga tip, of which A500 / A2000 users may not be aware. Pressing CTRL-J after a command (instead of ENTER), will store the command. You can then build up a store of several commands which are all executed at once when RETURN is pressed.

COMAL news now. I am afraid the PC version of COMAL can no longer be obtained free of charge. UniComal have withdrawn the free COMAL interpreter offer. However, a complete COMAL system, including compiler and documentation (which is excellent) called the COMAL Programming Kit, is

available from UniComal for $165. The new PC COMAL version 3.0, which includes records, pointers, data structures, modules, increased speed etc., has been announced by UniComal. It comes at $430 (including the compiler) or as a $290 upgrade to the COMAL Programming Kit. Interpreter-only options are cheaper. I have free leaflets available on these PC COMAL products and others. Send me an SAE if you want one. I have heard second hand that Amiga COMAL will be distributed by UniComal and will cost around £80. At present I am treating this as rumour, but as I hear further news I will let you know.

I usually end these articles of snippets with some humour from the computer trade press. This is no exception. Here are some alternative definitions for your delight.

ANSI and ASCII - Two characters from the first draft of the fairy tale 'Hansel and Gretel'.

BASIC - Acronym for 'Blimey Andrew, Still Into C' uttered by the smarty pants with a C++ compiler.

Cross Compiler - What you get if you pour water down a compiler hole,

DONGLE - Suspicious black plastic thing found concealed in a colleague's drawer the night after an Ann Summers party.

DOT MATRIX PRINTER - Parasitic creature characterised by its harsh screaming mating call.

MANDELBROT SET - Group of computer programmers who spend all their free time writing graphics programs.

SPECIFICATION - Pretentious name for the back of a cigarette packet.

SUPER * CORNER

edited by Brian Fowler

First this time, a warning from Joe Griffin which may be of interest to Superbase 128 users ...

Report on a bug in Superbase 128

by Joe Griffin

Following a request from Ron Rowley of Precision to investigate problems experienced by ICPUG member Paul Hazeltine, I have found that there is a bug in the 128/1581 version of Superbase.

The particular bug reported concerned failure of the program to work correctly with an SFD-1001 drive. I do not have such a drive, but do have an 8250. The SFD-1001 is essentially one drive of the 8250.

Because Superbase uses direct access techniques to write its data to disk, it ignores the normal DOS file handling during the write operation of ENTRY or IMPORT. Special coding is required within the program to avoid the data being written to the directory track. Superbase starts writing its data from track 2 and continues through higher tracks. To test for this bug it was necessary to import a file which would use more than half the first side of the disk, so that the data crosses the directory track. After importing the data, the disk was examined with 'Super Disk Doc'. The block availability map (BAM) indicated which sectors on track 39 were allocated. With two versions of S'base, only sectors 0 (disk header) and 1 (first block of directory) were used, the allocated blocks did not then restart until track 40, sector 2. Using the 1581 version of S'base on the 8250 drive, all track 39 was allocated.

I have looked at three versions of Superbase, to see when the bug occurs.

Superbase V2.07 (12 Aug 86)
Correctly identifies 77 track drives and avoids writing to the directory track.

Superbase V3.01 (12 Nov 88) (1571 Version)
As V2.07, directory track of the above drives is not overwritten.

Superbase V3.00 (19 Jul 87) (1581 Version)
This is the copy which was supplied to me for beta testing. Contains 1581

support but DOES NOT WORK WITH 8250.

Summary

It appears that in adding code to allow S'base to function with the 1581 drive, the 8050/8250/1001 recognition was lost. Users with 1581's but not 77 track drives should use the 1581 version of the program. Those with 77 track drives and without 1581's should be supplied with the 1571 version of the program. Users (like me) with both 1581 and 77 track drives do not have a version of the program which will function on both devices. Until Precision produce a fixed version of the program, a fix must be applied by the user.

A Do-it-yourself fix

Although the program does not know of the existence of the directory track, it is well enough behaved to avoid trampling on sectors which are already allocated. This can be used to prevent the program giving problems. On CBM drives, when first formatted, only sectors 0 and 1 of the directory track are used and allocated. If the remaining sectors on that track are allocated, they will be immune to the ravages of Superbase. The sectors can be allocated using a sector editor, such as Super-Disk-Doc, of by a simple loop which allocates them using the 'block allocate' direct access command. A slower but simpler method makes use of one of the quirks of Commodore DOS. As files are added to the directory, additional entries are made in the directory table and the number of sectors used for the directory is increased until the limit of 224 entries (28 sectors, 8 entries per sector) is reached. Unless the disk is 'validated', the allocation of the directory is never decreased, even if all the files are deleted. Thus it is possible to prevent Superbase from trampling on the directory track by creating a full directory and then deleting the relevant files. This can be done by a single line of BASIC (shown here as split).

```
for i=1 to 224:dopen#1,("delete me"+str$(i)),w,u9:
print#1:dclose#1,u9:next i:scratch "delete me *",u9
```

This will create files until the directory is full, then erase them again. The directory sectors will, however, be left allocated and hence immune from overwriting. The 'fix' should be applied when the disk is first formatted, before Superbase is booted.

Thanks to Joe for the above.

And now a handy page numbering utility from M J Brown of 27 Great Cob, Springfield, Chelmsford, CM1 5LA. Michael starts by advising us of his system :

My Equipment:
CBM 128D (old model) with 1571 Fix ROM
Canon PW1080A Printer
Letter written using Superscript 128

One of the shortcomings of Superbase 128 is the lack of page numbering in report printouts. This is covered to some extent for simple reports in the Superbase Book, (which is well worth getting by the way), but for complicated reports I have developed the technique below. Please excuse the long-winded explanation.

My solution is basically a line counter, but it caters for occasions where the report contains more than one line per record, and extra lines for subtotals. First a number of variables have to be set up:

```
10 pl = 72 :rem page length in lines
20 tl = 65 :rem text length in lines
30 tt = 5  :rem number of lines used by titles including (if any)
              those used to set the printer to the required text
              style
40 nr = 2 :rem number of lines used in printout per record
50 ns = 3 :rem number of lines used to print subtotal text etc
60 pn = 1 :rem initial page number
```

From these can be deduced

```
70 h = pl-tl+tt :rem total number of lines NOT available for data
                   printout
80 plen pl: tlen tl :rem setting superbase formats
```

The stage is now set for the report commands themselves. They should follow the standard format:

```
100 report "filename"
200 title "title text"
```

```
300 total "total text" :rem  page number calculations done here
400 subtotal [fieldname] "subtotal text"
600 detail from "listname" [fieldname1][fieldname2]etc
700 endreport
```

The title line should include the variable pn somewhere on the first line, formatted for zero decimal places, eg

```
200 title  @position "Page" &2,0pn
```

The total and subtotal lines should be as follows:

```
300 total n=abs(s1=0); s1=s1+1; t1=t1+nr+(ns*n);
        add=int((t1+9+(pn*h))/pl); pn=1+add
400 subtotal [fieldname] "subtotal text" plus s1
500 "anymore subtotal text"
```

It is important that the variable s1 appears at the end of the first line of subtotal. s1 is set to zero only at the start of a subgroup i.e. after a subtotal. For each subsequent record in the subgroup it is incremented by 1 to ensure that it is non-zero. The line counter can now be explained. Since s1 is zero only after the subtotal, n=1 at this time and is zero elsewhere. Hence n*ns represents the number of lines used for a subtotal. t1 is the line counter, incremented by nr for each record or ns for each subtotal. pn*h represents the total number of lines lost to titles and blank paper, so t1 + pn*h is the total line count. I have added an offset of 9 to this , but any number up to pl would be OK. This is because t1 is not updated until AFTER a subtotal and so if a subtotal happens to be at the bottom of the page it is incremented too late for the page number to be changed in time. The offset is to ensure that pn is updated a few lines before the title lines of the next page. This also allows for the occasional long field causing the printout to skip a line. This does not matter because "add" and hence pn can be allowed to change at any time after the top line of the current page.

If in doubt about any of the variables a trial printout can be done with say t1 and pn added somewhere in the detail line, taking care that they do not distort the report. They can then be checked to see that pn changes well before the bottom of a page, and ideally at the SAME position on each page.

Derek Tilford writes about 128 applications he uses to catalogue his disk library. Included with the letter were screen dumps and output from his application; unfortunately they can not be reproduced here due to considerations of space. Derek writes...

I have just read your SUPER * CORNER in the May/June Icpug Newsletter, together with the plea for contributions from members on the use of Super* products. Having been a CBM64 user for over 6 years and a CBM128 user for the last 3+ and during the majority of this time a Superbase user, I may have something of interest for you.

Thinking along your idea of developing a database from scratch and combining it with some Superbase applications, I wondered whether you would be interested in the 128 applications which I produced to catalogue my disks and the programs/files contained on these disks. Initially I used a standard product over here (Derek is writing from Germany - BF) called Disk Catalogue which is quite good except that it has one particular limitation, i.e. file size. It could only handle approx 500 records and once you reached over 200 records it was very slow in sorting and generally handling the records, because they were stored sequentially. To overcome this I thought that Superbase with its relational database may overcome the problem. As you will see from the documentation which I have included, I currently have records on 427 disks and 1401 programs and with the 128/1571 disk format still have 140 blocks (35k) of space left on the disk for additional records.

Basically using two file structures, one for storing disk data and the other for program/file data, I have records of all the data stored on my disks. Using this data and developing application programs you can see that I have a complete catalogue system. The program DISKCAT.P allows sorted hardcopy lists to be made of the disk details, the program PROGCAT.P allows hardcopy lists to be produced using a number of selection criteria, topic, disk ID. Additionally there are some maintenance functions available.

You state that an idea you had, would be to generate files &c on both the Amiga and the 128 so that similarities and differences could be highlighted. As a suggestion if you used my files and programs as a basis for the 128 and you produced the same system on the Amiga, then having started with a proven system, half the necessary work needed to realise your suggestion is already done. If you are interested let me know and I can copy the disk to you so that you can have a closer look and see if it suits your purpose. Some documentation would be provided using Superscript. In addition to using this method to catalogue my disks, I have set up a similar system to catalogue and index a series of language text books which is used

in teaching English here in Germany.

One added advantage of this system is that I started it on the 64, so it is also compatible with that version of Superbase, the only difference is the total space available on the data disk. In this respect I modified a 64 disk directory hardcopy program to allow me to obtain all the data relating to the files/programs on the 64 disks and dump this data in a form that it can be imported directly into Superbase without having to manually input the data as for the C128 programs.

I see also that Chris Wright complains about lack of material for the new Superbase disk. Not having seen any of the Superbase disks which have been available in the past, I do not know whether such an application exists in the library. If it doesn't Chris can certainly have a copy of the suite for future use.

I would like to take you up on your offer, Derek. If you would forward your disk to me, I will copy it and send the original on to Chris Wright. If suitable (and if I am able!) I will start to duplicate your system using Superbase running on the Amiga.

C-64 SOFTWARE LIBRARY

As a result of the death, in service, of Bob Burns, there is now a new copier for the C-64 library.

Roger Mather of Sutton has kindly agreed to take over copying for members with names in the range 'D' to 'H'. His address is given at the usual place inside the back cover of this issue.

TWIN CITIES 128 COMPENDIUM BOOK 1

by Paul Traynor

I like the satisfaction of reading a magazine from cover to cover where everything is of relevance there is no skipping through pages which cover information that is of no use to your particular machine. The first issue of Twin Cities 128 was in December 1985 and since then it has grown to be the most informative magazine for C128 and C128D owners, but like so much of the 128's support it comes from the USA.

The spiral bound, A5 size Compendium Book number 1 contains the best of issues 1-18 arranged in chronological order. Areas covered include software, hardware and book reviews. Firstly there is a large range of software and books under review including the Super series, the Paperback series, Timeworks series, Visastar, CADPAK, Merlin, Blitz, Bobsterm pro, Xref, 128 Internals, Tricks and Tips, 1001 things to do with your Commodore 128. Hardware looked at includes C128D, 1750 ram expansion module, and the 1581 drive.

As well as reviewing the software space is devoted to actually helping you use it. This is true of Superbase and Basic 8 in particular. People who program in Commodore Basic 7 or Machine Language are certainly not forgotten and CP/M also gets good coverage including a chapter on modifying CP/M to work with the 1581 drive.

There are three very informative chapters on modifications to your hardware. These are upgrading your VDC RAM to 64K, fitting the upgrade ROMS to both the C128 and the 1571 and fitting dip switches to the C128D to enable the drive device number to be changed.

There are three interesting chapters which appear quite often within the course of the book the first is Rumour/ Opinion/ Mayhem which is a kind of introduction to each issue and includes news and views in the Commodore 128 world. The other chapters are Forgotten Basic, which explains the use of various Basic 7 commands, and Sparrow's Slick Tips which are tips on everything from calling a directory to advanced pattern matching with DOS version 3D and from creating Roman numerals to using Doodle pictures in 128 mode.

Also there are a number of sub-routines which include fixes for the Basic 8 bugs and routines to measure the amount of system and VDC RAM.

Contributors to the Compendium Book include Miklos Garamszeghy, Fred Bowen, Jim Butterfield, Avonelle Lovhaug and Loren Lovhaug who is the managing editor. It is available from FSSL, 18 High Street, Pershore, Worcestershire WR10 1BG as are Subscriptions to the magazine. Or you can write direct to Twin Cities 128, P.O. Box 4625, Saint Paul, MN 55104 USA.

FSS VIA JANUS

by Anthony Dimmer

For any who may still be trying to get the 1.3 Fast File System working via the Janus interface, the answer was given by Don Curtis in the latest edition of Transactor. To do it, you will require a disk editor which will write to the hard disk, e.g. the latest version of DiskX by Steve Tibbett.

AmigaDOS looks at the first four bytes in the root sector to see if is DOS0 or DOS1 (for Old and Fast file systems respectively). This is seen in ASCII as DosType in the MountList.

Procedure

1. Use DJMount followed by DPFormat (1.2 versions) noting the low and high cylinder numbers.
2. Using DiskX or similar, change byte 4 in block 0 from 00 to 01.
3. Create a 1.3 MountList entry using the numbers obtained in step 1.
4. remove DJMount from your startup-sequence and add MOUNT JH0: (or whatever you have called it).
5. re-boot and you should be there. It is well worth doing.

There are several programs to transfer the date from the Amiga to the PC side. Tjhe neatest one that I have seen is by Ken Salmon, however the date is in U.S. format (ie. MM DD YY), and it also makes a file on DF0:, requiring your boot disk to be write enabled. I have altered this to use the correct date format, and to write its temporary file in RAM:

If anyone would like a copy of the PCDate program, plus RunBack (which you will need from Fish 65) and DiskX, I would be happy to oblige on recipt of a disk with suitable return mailer and postage. My address is Crest House, Stakes Hill Road, Purbrook, Portsmouth, Hants. PO7 5VE.

REDIRECTING OUTPUT TO A PRINTER

by Richard Sharp

I read with interest the article in the July/August issue of the ICPUG magazine about the use of printers and how to use the secondary address to obtain text mode. While reading it, I wondered if anybody had realised that it is possible to run a program and have the results output not to the screen, but to the printer. This is possible because to access anything in a C64/+4 etc you have to open a file to it. For example.

To access tape; OPEN1,1
To access printer; OPEN4,4

In full the common device Nos. are:

0	KEYBOARD(DEFAULT)
1	TAPE
2	RS232
3	SCREEN
4/5	PRINTER
8	DISK

Commodore got it wrong again. In the users manual 0 = screen. Oh well, and to think I used to refer to it! The following short program demonstrates what I mean. (MAKE SURE YOUR PRINTER IS ON)

```
 5 open 1,3:open2,4:cmd2:REM open screen to printer
10 a=2:b=4:c=5:REM declare variables
20 printspc(c)"2*4=";a*b;:REM note';' at end of line
30 printspc(c+15)"4-2=";b-a
40 printspc(c+10)"2+4=";a+b
50 print#2:close1:close2:REM close files
```

When you run it, you will notice nothing happens on the screen. Instead your printer is happily whirring away and has printed the program (plus results). You will also notice the way the SPC command has come in handy. I prefer this to TAB as you can specify SPC(170) to move the cursor down 4 lines and across 10. Much tidier than all those cursor down & across/TAB(10) (to say nothing of the memory saved). The CMD command changes the output

to the device you specify. PRINT#2 at the end (NOT ?# BUT P shift R. Its a keyword) empties the printer buffer and exits CMD mode. Finally the files are CLOSED. This is important because you are only allowed to have five (I think) files open at once, then you get an error message. But more importantly you stand a very good chance of losing your data, especially on disk.

This technique could prove very helpful to people who need a hard copy of data which is locked away in arrays. All you need is to insert the first and last lines in the program, maybe as a GOSUB, and run it. I hope this is of help to someone if only to now know WHY you use the commands, although you know that is the way to do it.

MEMBERSHIP STATISTICS

The number of members on 5th September 1989 was: 3149
The number at the same time last year was: 3978

COMPUTERS	NUMBER	%AGE OF MEMBERS
C-64	1426	45.28
Amiga	1461	46.40
C-128	891	28.29
PET / CBM	351	11.15
VIC	297	9.43
PLUS/4	268	8.51
PC	160	5.08
C-16	61	1.94
700	31	0.98
PERIPHERALS		
Disk Drives	2978	94.57
Cassettes	1657	52.62
Printers	2612	82.95
Monitors	1867	59.29
Modems	667	21.18

You will notice that for the first time, the Amiga has become the most popular computer amongst ICPUG members.

JIFFYDOS - REVIEWED

by Joe Griffin

Those of you who have read my Seven-and-a-Half Bits column in this issue will have seen that I sing the praises of Creative Micro Designs (of Wilbaraham, Massachusetts). They have produced a fix ROM for the 128D Desktop machines. Testing the ROM installed in my 128D showed that it is compatible with all my software and does finally nail the side two BAM bug. Hence it has become a standard fitting in my 128D. This ROM is not a stand-alone item but is part of the JiffyDOS system.

JiffyDOS is a speed enhancement system for the 64 and 128 with appropriate drives. Unlike other devices which wedge code into the operating system, JiffyDOS replaces the ROM chips in both the kernal and the drive, to give a fully compatible system. The system is available for 64, 64-C, SX-64, 128 (and 128D portable) and the 128D desktop machines. Disk drives covered include 1541, 1541-C, 1541-II, 1571 and 1581 plus a number of third party drives.

The system comes as a pair of chips, one each for the computer and drive. For the 128D and SX-64 the drive ROM is the one for the installed drive but for the other machines the user specifies what drive is required. The chips come with full fitting instructions and installation in my 128D, including drilling a hole for the control switch, took about 15 minutes.

In use, the first thing I found with JiffyDOS is that formatting of disks on the 1571 in 1541 mode is carried out at 1571 speed, even when the system is not activated. With the Commodore ROM, formatting a 1541 disk took 73 seconds. With the JiffyDOS drive ROM installed, but not the kernal, the time was down to 23 seconds.

On the 128, file save times, for both program and data files, was reduced by 30% and the time to read a text file into Superscript was reduced by about 10%. 40 column mode cannot use the fast 2MHz processor speed but use of the JiffyDOS system allowed this mode to turn in file loading/saving times as good as in 80 column mode. In 40 columns the reading time was reduced by 40% compared with the stock system. In native 128 mode, reading an entire disk with Jim Butterfield's 'Disk Log' program showed a 30% gain in 80 column mode when JiffyDOS was activated. Load times for program files seemed to be unaffected by the system, though the manual indicates that there should be a noticeable improvement.

The biggest difference came when the drive was set in 1541 mode. Without JiffyDOS, the speeds were those of the sluggish 1541, but enabling

the system put the speed up to that of the 1571.

With the computer set in 64 mode, there were vast improvements in disk access speed. The stock system limps along at 1541 speed, even if the drive has been forced into 1571 mode. Once JiffyDOS had been enabled the drive, in 1541 mode, returned speeds equal to those from the 1571 in 80 column 128 mode. If the drive was forced into 1571 mode (or 64 mode entered from 128 mode by 'GO64') then the speeds reverted to those of the 1541! The manual warns of this.

As well as providing improved disk access, the system includes a DOS wedge, which makes disk housekeeping a lot easier, especially in 64 mode. The wedge allows the user to specify a drive number to be accessed, so multiple drives can be used and it includes the ability to list a program or text file to the screen, without disturbing the current program.

The only disadvantage of using JiffyDOS is that when it is enabled, the tape routines are not available. The space taken by these routines is used for the fast access code. However, a switch is provided which allows JiffyDOS to be disabled should the need arise.

In conclusion, the 80 column user will see faster file saving and faster reading of sequential files. In 40 column mode all disk operations will be about 30% quicker than with a stock system while in C-64 mode, a reduction of about 50% can be expected. C-64 users and those with 1541 drives can expect most benefit from this system. Anyone who has a metal cased 128D is strongly urged to obtain at least the 1571D fix ROM and benefits will be gained by obtaining the full JiffyDOS system.

At the start of this review I said that JiffyDOS has become a fixture in my machine. Version 6 of JiffyDOS has now been released but I have not yet received a copy, though it is expected at any time and I anxiously await the arrival of both the new kernal and a ROM for my 1581.

JiffyDOS is available in the UK from Financial Systems Software Ltd. of Pershore, Worcestershire (Tel 0386-553153 or -553222 for latest information). The price is £59.95 and additional drive ROMs, including the 1571D fix ROM (which is available separately), cost £24.95.

THE DPS 1101 DAISYWHEEL AND SUPERSCRIPT

by P.J. Longbottom

I have written an earlier article for ICPUG (ICPUG Journal Vol.9, No.4, July/August 1987) which covered the very simplest methods of changing daisywheels or ribbons during printing. This article advances to the much more complex methods that can be employed to produce 'an all singing, all dancing version'. I sent a full colour copy to the editor of what can be achieved. [And very impressive it is too! - Ed] It's a pity it can't be reproduced in colour here on these pages!

Changing ribbons or daisywheels during printing

In the following article any asterisks ('*') seen represent the reverse field asterisks (negative colour) used in Superscript together with the commands they instigate. Also in this article carriage return, left-pointing arrows are shown as a 'greater than' ('<') symbol.

Always ensure that the ribbon and daisywheel you intend to start printing operations with are in the printer before switching everything on and loading SUPERSCRIPT and starting work in the editing screen mode.

In all change operations you should ensure that the ribbon carriage is not accidently moved during them or printing thereafter will have shifted accordingly.

DO NOT PRESS EITHER 'P' or 'S' AFTER A PAUSE, TO RE-START OPERATIONS, AS YOUR PRINTER MAY HANG UP ON YOU! Pressing 'V' will move you to viewing mode and is not likely to be required for these operations other than as a viewing check before printing.

To change a ribbon or daisywheel

To change either ribbons or daisywheels, use is made of the PAUSE command. During printing or viewing operations the PAUSE command pauses the current operation and is accompanied by an audio signal. Its use prevents all following data being fed into the printer buffer or to the viewing screen. By placing a PAUSE command at the START of an editing line, after a carriage return, and a SKIP command on the previous editing line, you ensure that during printing your printer pauses at the left hand edge [of the printer], e.g.

```
Text text text.*sk1<
*ps<
Text text text.<
```

On pressing 'C' the printer continues to print the next line of text. If you want to change ribbons though, the pause ('*ps') should be at the END of a line and without any skip command, e.g.

```
Text text text.*ps<
Text text text.<
```

This will cause the ribbon carriage to stop where it is and wait for you to carry out the change operation. If this is not done like the above example you may find you cannot get the ribbon out because the ribbon carriage is under the left-hand edge of the printer's case. On pressing 'C' the following carriage return is acted upon and the ribbon carriage moves to the left of the printer and continues to print the next line of text. The use of PAUSE combined with changing a daisywheel and/or printer ribbon will ONLY WORK if it is preceded by SOME TEXT! It will not work if a PAUSE to change the daisywheel and/or printer ribbon is the first operation done on output.

By placing a memo after the '*ps' the memo will be displayed on the tabs line as a comment, e.g. '*ps CHANGE TO JOAN ITALIC WHEEL<' or 'PS CHANGE TO RED RIBBON<'. The use of SCREEN COLOUR commands is much more effective, but ONLY when changing daisyweels. These should be utilised on lines immediately preceeding and following the above, e.g.

```
*sc0,6,0,6,0,0<
*ps CHANGE TO ELITE MODERN WHEEL<
*sc0,6,12,6,11,2<
```

(See pages D-4/5 of the Superscript handbook regarding how the number order relate to parts of the screen and also what number relates to what colour.) The example above effectively blanks out all the screen except the tabs line and then restores it when 'C' is pressed to continue the appropriate operation.

So much for the actual superscript commands. Now for the other actions: Once your printer pauses CHANGE YOUR RIBBON AND/OR DAISYWHEEL (as per your memo on the tabs line). Then if your pause was to enable a wheel change press 'PAUSE/CLEAR' on your printer's right-hand edge, WAIT until the printer has re-initialized and finally press 'C' to continue printing.

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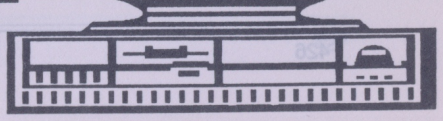

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To facilitate ribbon or daisywheel change anywhere

This will not work effectively with justification or proportional spacing turned on! So please TURN THESE OFF at the start of any section of a document that involves any of the following operations. If you prefer not to turn justification off then you will have to add extra spaces yourself to match the right-hand margin. This is also a very fiddly operation, consuming much time, especially if a lot of changes are involved. There are several methods to achieve the desired result.

The PAUSE command is used as outlined previously. Any instructions used as part of a PAUSE command, i.e. words intended to be displayed on the tabs line as a comment, following a '*ps', must not over-lap onto the next line of text on the editor screen. If it does then or all those parts that do will be treated as part of the printable text and not as part of the '*ps' comment. Nor should they exceed 40 characters (including the pause command and carriage return arrow) or an error message will be displayed causing the current operation to STOP.

The next line must include either a REVERSE LINEFEED command or two consecutive REVERSE HALF LINEFEED commands before any text. This is followed by keying 'F1/S/J' which prints a reverse field '&' on the editing screen. This is the JOIN command. By keying 'RUN-STOP/R' repeatably successive JOIN symbols can be produced on the editing screen. A JOIN command is used for each of the number of spaces occupied by the previous line of printed text, up to the point where the PAUSE command was placed (N.B. use of the viewing facility must be made to establish this accurately). However the JOIN command cannot be used if it causes the next PAUSE command and its comment to over-run the end of the line on the editing screen for the reasons already given.

To avoid this problem the INSET command must be used, i.e. '*inN' where the 'N' is the amount of spaces which would acrue from the start of the printed line containing the INSET command. It is possible to have up to four INSET commands operative at once. Each is cumulative on previous INSET commands and each needs to be cancelled before the next printed line by '*in0'. The INSET command can also be used to save editing screen space/memory in place of perhaps a long series of JOIN commands. Sometimes an error message "margins too close" will result and then the amount of 'N' has to be reduced and JOIN commands used to make the amount up. Needless to say this causes a lot of fiddling about to obtain the correct sequence of commands to produce the final printout and requires a great deal of patience.

The methods which can be used to obtain a reverse linefeed, or two reverse half linefeeds are:

- Use the LAYOUT ENTER FEATURE command, i.e. '*fe' followed by the appropriate ASCII code/s. '*fe,27,10' causes the printer to do a reverse linefeed and '*fe27,68,27,68 causes the printer to do two reverse half linefeeds.

- Use of the ESCAPE command, i.e. key in 'F1/F/F/E' followed by the escape code letter or number for reverse half linefeed, i.e. code 'D' or 'd'. Use of this method is restricted to reverse half linefeeds due to the reverse linefeed using two letters which are not interpreted correctly by Superscript, i.e. code 'LF'.

- Entering the escape codes (see '1' above) into the defaults file as a FEATURE command and then keying 'F1/F/F/n' where 'n' is the allocated feature number (see Superscript handbook on how to do this).

The result of these is such that the viewed version appears to take up two lines of text for every pause used for a change, but the actual final printed version only takes up one line of text, with the change of print colour and/or type-style being the only [visible] change/s noticeable. For each FULL negative linefeed you use you need to extend the PAGE LENGTH by ONE using '*pln' where 'n' is the previous page length plus one. Caution must be exercised to ensure that this does not continue onto another page. Hence near the top of another page, before any reverse linefeeds have been used on it, the page length will have to be re-set to the norm, i.e. '*pl72' for a 12" page or 'pl66' for an 11" page &c. This presupposes that your lines per inch are set at six, i.e. '*li6'.

The simplest method to achieve these changes is to input all your text first. Secondly add your pause commands with any comments and/or SCREEN COLOUR commands you wish to use - remember you can only use screen colour changes in conjunction with daisywheel changes or your ribbon carriage will end up under your printer's left-hand edge causing the problems already outlined. Thirdly add the REVERSE LINEFEED command or two REVERSE HALF LINEFEED commands (by your chosen method). Fourthly add the number of JOIN commands required and finally alter (increase) your PAGE LENGTH command. To ensure you have made no mistakes use the VIEW facility to check your entries before PRINTING.

To help you better understand following are working examples with all

types of the changes that have been explained, except for the use of a feature number command, which you are not likely to have in your defaults file, for you to try out on your printer. Should you not have a DPS 1101 Printer on-line then when your screen changes colour keep keying 'V' instead of 'C' and follow the instructions given on the comment line. You will then have escaped the possibility of some other on-line printer hanging-up on you because it did not recognise a command. That is why this article, up to the end of this page, has not made use of any formatting commands whatsoever. The example assumes that you have a PROPORTIONAL SPACE WHEEL and five varieties of daisywheel which can be used at twelve characters per inch pitch, viz. ELITE MODERN, JOAN ITALIC, HELEN, CLASSIC & MINI MAJESTIC. Use of differently pitched wheels in the same print sequence causes other problems which are best avoided. It also assumes that you have five differently coloured ribbons. You can, of course, use fewer wheels or ribbons.

Now carefully copy the following to get things moving. All spaces are single spaces.

Key to following:

* = reverse colour * in Superscript - key CTRL/L to obtain
& = reverse colour & in Superscript - key F1/l/j to obtain
^ = reverse colour ^ (up arrow, i.e. escape) in Superscript - key F1/f/f/e to obtain
< = key return

```
*np:sc0,8,0,8,0,0<
*ps CHECK PRINTER ON-LINE IS A DPS 1101<
*ps DIP SWITCHES SET FOR 12" PAPER ???<
*ps INSERT 12" PAPER INTO PRINTER<
*ps START WITH BLACK RIBBON<
*ps START WITH ELITE MODERN WHEEL<
*ps IF ALL IS WELL KEY 'C'<
*sc0,8,15,8,2,2:fe27,81:lm6:rm90:ci12:li6:sk2:cy<
EXAMPLE OF RIBBON & DAISYWHEEL CHANGES*ps BROWN<
*sk2:cn;Did you notice when/if you read this on the editing screen how several pauses were used to give several consecutive comments/instructions on the comment line? Also how all the other commands were added to the end of the last SCREEN COLOUR command line? The '*fe27,83' feature command ensured you were not in Proportionally Spaced Print Mode
```

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BEFORE the '*ci12' command set the cpi (characters per inch) to 12. The MARGIN commands were input to ensure your default settings matched mine.*ps BLACK<
*sc0,8,0,8,0,0<
*ps CHANGE TO JOAN ITALIC WHEEL<
*sc0,8,15,8,2,2:sk2<
It is important that changes of cpi&&&&&*ps RED<
*pl73:fe27,10;&&&&&

*sc0,8,15,8,2,2:sk2<
Which combination of the REVERSE LINEFEEDS and REVERSE HALF LINEFEEDS, INSET, JOIN, LAYOUT ENTER FEATURE, ESCAPE, PAGE LENGTH, SCREEN COLOUR and PAUSE commands you use are realy down to your own experimentation now you've seen these examples.*ps RED<
*sc0,8,0,8,0,0<
*ps CHANGE TO MINI MAJESTIC WHEEL<
*sc0,8,15,8,2,2:sk2<
I have also written an earlier article on this matter in ICPUG magazine - June/July 1987 (p366) which you may find of interest. Albeit that article did not deal with the changes in quite the same way, i.e. as much detail and clarity.*ps GREEN<
*sc0,8,0,8,0,0<
*ps CHANGE TO HELEN 12 WHEEL<
*sc0,8,15,8,2,2:sk2<
All the examples were tested using my DPS 1101 Printer and worked as described. The computer used with it was a C64. If you have any problems please drop me a line through the magazine or MBX me on Compunet - PJL4.*ps BLACK<
*sc0,8,0,8,0,0<
*ps CHANGE TO PROPORTIONAL WHEEL<
*sc0,8,15,8,2,2:lm6:rm90:sk2:fe27,80<
P.S. This takes about 15 minutes to print with all the changes!<

TEXAS TALES

by Betty Clay

Commodore's news in the U.S this summer has come mostly in the way of official press releases, which would have been available in England, so we will dispense with most of those! The latest innovation from Commodore, however, has been something real and useful.

Commodore is now trying - for the first time - to release updates to software through the telecommunications networks. They have set up an area for them on BIX, and will do so on the other networks as soon as it can be worked out. The sections begin with a licensing agreement, to protect their copyright, and one must agree to the license in order to enter this section of the boards. Their first update released in this manner is an update to the Workbench - Workbench1.32. There have been quite a large number of bug fixes in this release. Here are some of them:

Setpatch has had four errors corrected. The alert code has been repaired so that it works with the machines that have 1MB of chip memory; TrackDisk's GetUnit has been repaired, there has been a change in the RUN command so that it works from the resident list with DOS execute; and UserState has been fixed to work with the 68010 chip.

LoadWB now closes the icon.library; Eval now parses strings better, and can handle parentheses properly. DiskDoctor used to refuse to work, giving an "out of memory" error when there was plenty of memory; this has been fixed. It also uses different code that allows it to work with large hard disks. (They did not guarantee that DiskDoctor will work better than before - just that these items have been fixed! However, DiskDoctor has been rather successful at repairing the "Key xxxxx already set" errors. I still recommend using DiskSalv instead).

There have been a number of changes to the FORMAT command. In particular, it works better with large hard drives and is giving better error messages than before. The NOFFS keyword has been removed, since it had not proved to be very helpful.

There have been small changes to FastMemFirst and NoFastMem so that they more properly handle chip, fast, and public memory. The Pipe-Handler will no longer give you problems because of upper or lower case. Speak-Handler no longer objects to case, either - and it will not take away 10K of your memory when it receives an unknown packet type.

Repairs to the FastFileSystem make it a bit more robust. For instance, it used to fail if the boot block contained a zero in the first longword. This

does not happen any longer. Neither does it change the date stamp of the root block when you change a file in some other directory. The "last modified" date will be altered instead. The final alteration to the FastFileSystem will not affect most of us - it can now handle hard disks up to 2.5 gigabytes as opposed to the current 308 megabytes.

In the Utilities drawer, CMD will now work with device names that have an odd number of characters, and the QUERY function has been added so that printer drivers that query the printer will work properly. Also, the ClockPtr has been switched over to the European version with a 24 hour option.

One of the nicest fixes from my own viewpoint is that the info.library will no longer combine tooltypes improperly. This update is so new that there has not yet been time to test it out. I like a program called HandyIcons. It lets me have an extra menu on my Workbench screen from which I can call up almost everything that I use often, just from a menu selection. These programs are set up by adding the file name and path to an icon as a tooltype. With earlier versions of the info.library, adding a tool caused the loss of tools already there. Anything new required deleting all of the things I had set up, and re-entering everything, including the new ones. This should no longer be necessary, and will make it much easier to use or change tooltypes in any icon.

There have been other minor changes. Most of them will affect only small numbers of users, but for those users, they are terribly important. The serial device, for example, can now handle mismatched baud rates, takes less memory, and will not attempt to open a unit that does not exist. The printer device supports multipass printers better.

Overall, we should have a more stable and useful workbench once these files are installed. I do hope you have them long before this newsletter is printed. They arrived here the last week of August.

Changes at Commodore US

Throughout the summer, we have been reading of a steady stream of personnel changes at Commodore. First, Max Toy resigned as president, and Harold Copperman was chosen as his replacement. Mr. Copperman had been with Apple Computers for quite a while, and it was felt that he had experience in promotion and sales that were badly needed by Commodore. Mr. Lloyd Mahaffey is now VP in charge of Marketing. He has scheduled a tremendous advertising push for the Christmas sales season. We are told it may be as much as fifteen or sixteen times as much as was spent for U.S.

advertising last year!

We are told that Commodore is hiring large numbers of people. The CATS group - Commodore Applications and Technical Support - has grown by about 50% during the summer, and ads have been placed on BIX and Usenet asking for applications for engineers, programmers, and others. One report said that the number of people in the field and various kinds of support will more than double in the next six months. We even hear that there is to be a new Vice President in Customer Satisfaction. (Now, won't THAT be a change!)

Commodore is pushing ahead to develop networking ability for the Amiga. They have purchased Ameristar, the company that developed the Amiga Ethernet board, and Oxxi is working on Novell networking software to go along with the Ameristar boards. All of this should be in place very soon now, according to rumours and reports. With Ethernet boards in place, the Amigas can be placed on the same network with mainframes, MS-DOS machines, MacIntoshes, etc., and can share their hard disks, printers, and data. Networking capability should be most useful in selling Amigas to businesses.

The Amiga dealers throughout the US are now being requalified. Requirements have been made much, much stricter, and quite a few dealers will not be able to meet the new requirements. For example, any authorised dealer will have to order at least $200,000 worth of equipment per year. Many dealers in smaller areas simply do not have this kind of market situation. Dealers in large population areas are delighted; those in smaller situations are in distress. The whole idea, of course, is that a dealer must maintain a rather large base of customers in order to afford the kind of support that Commodore wants them to give. There are good points to both sides of the issue, and we shall have to see how it all works out. I do hope that our more sparsely populated areas do not lose all their dealers.

In yet another move, the Commodore Applications and Technical Support department, headed by Gail Wellington, has been removed from the research department and made a department of its own. The staff has been increased. This move is said to be a part of a push by Commodore to involve third-party developers more fully in providing the applications software that can push all of the Commodore products to the kind of sales that will achieve the company's goal - to increase revenue by over 70% this year. Ms. Wellington's announced plans call for formation of a developer's advisory board, establishment of a worldwide electronic communications link, marketing support in addition to technical support, coordination of user interfaces and documentation standards, and more active participation in key third party

projects.

All in all, it does sound as if Commodore were at last trying to move into a brighter spot in the U.S. market. We do wish them well. However, we have observed quite a large number of staff changes at Commodore over the years, have heard encouraging speeches from many new administrators, and have observed the results. Once we see all of these things begin to happen, we will become truly enthusiastic.

Word Perfect tries again

Earlier this year, Word Perfect Corporation made a series of announcements concerning the Amiga version of Word Perfect. First, they announced that they would do no further development on it, and that all Amiga programmers were being transferred to work on other computers with windowing systems (where their expertise was truly needed). There was a loud outcry from all who owned WordPerfect, and the company backtracked a bit. They left three programmers to work on the Amiga, moving the others. Lynn LeBaron was the chief Amiga programmer, and was one of the three who remained. During these weeks, he has been working on an update to Amiga WordPerfect 4.1, trying to fix all of the bugs that were reported to him and to the company's telephone support service.

Lynn has just announced that his update should be shipping about Sept. 1, and has given us quite a list of things that have been repaired or improved. This latest update should be available by the time you read this, and should make the program far more usable. The new features, as they were listed in Lynn's announcement, are as follows:

1. You can now set the beep in your setup options to give either audio or screen beeps (or both), and can choose whether or not to be beeped whenever there is a warning on hypenation, failed searches, various errors, and just before an automatic backup takes place.
2. You can specify a default path to macros in your setup option. They no longer have to be kept in the root directory with the WordPerfect program.
3. You can set a default path to the directory in which you want your documents to be stored. This will still be part of the setup option, but at least you can have a data disk or directory, and will not be constantly expected to have everything in the root directory of your program disk!
4. In your setup, you can select a default of opening WordPerfect on the workbench screen, or of opening on a two-bitplane interlace (or non-interlace) screen.
5. The setup options will allow you to set a specific amount of memory to be allocated for holding a document that is being edited. Having an entire document in memory is certainly faster, but sometimes it is better to load parts of it in from disk, letting your computer reserve memory for running other tasks. You will be able to choose the amount of memory dedicated to documents while WordPerfect is running.
6. An auto-hyphenation option will cause WordPerfect to try to place hyphens automatically, without the user having to respond to a hyphenation requester every time a word must be broken.
7. It will be possible to disable the hyphenation process altogether. This is particularly useful to those of us who edit documents that have been downloaded from various electronic media. Sometimes those transmitted documents will have extremely long lines of characters that cause the hyphenation requester to pop up hundreds of times, and effectively prevent the editing or reading of the document at all. The new hyphenation requester will have a "disable" option that will permit the deletion of these unreadable lines. Once they are disposed of, the hyphenation can be turned on again so that the document can be correctly formatted for printing.
8. WordPerfect's file requesters have been modified to be consistent with the Amiga user interface.
9. All scroll arrows have been moved to the bottom of their respective scroll bar to allow easier incremental access. This is consistent with future standards set by Commodore.
10. WordPerfect will now display any non-proportional 8xN font for document editing. This is especially important to those with multisync monitors, and who use interlace screens and 11- or 13-pitch fonts as a default.
11. Many cases of multiple requesters coming up have been replaced with single requesters performing the function of the many. This includes: column definition, page length setting, hyphenation options, beep options, print options (in Print), etc.
12. The spelling checker has been improved to give better speed, smoother, progress report (updates a word count display every eight words)

In addition to these enhancements, we are assured that every known bug has been corrected. Since the last update prior to this one was in August of 1988, there has been time for users to find and report just about anything unlovable about this product. WordPerfect certainly hopes that they finally have made it - perfect!

UNDERSTANDING THE SID CHIP

by Mark Martin

There have been many books and magazine articles written about the Commodore 64's sound chip, SID, the primary source being the Commodore 64's Programmer's Reference Guide. However, these tend to fudge certain topics, like filtering, and all the ones I have seen inherit some inaccuracies from the Reference Guide. The purpose of this article is to fill in some gaps and correct some inaccuracies. To keep myself brief, I shall assume that some basic knowledge of the 64's sound is known, this can be got from a variety of places such as the Programmer's Reference Guide.

One major problem with the sound chip is that on the standard C64 there are no BASIC instructions to control it, everything has to be done by POKEs. Because of this, sound programs in BASIC tend to be messy, thus discouraging experimentation. To solve this minor problem, I have provided a set of machine code routines. These have been put in the spare RAM at location 49152 so they don't steal any memory from BASIC. [Editors note: The program accompanying this article has been placed in the club C64 library. It is available from Norman Wright (see inside back cover) in the normal manner.]

The machine code routines are accessed as a "extended" language with the general instruction:-

```
SYS 49152,"<command name>",[parameters]
```

The address is always 49152 and the relevant routine is chosen according to the command name in the quotes. Note that there is always a comma after the 49152.

Starting the program

At the beginning of any program using sound, the SID registers should all be set to zero. The reason for this is to clear any stray sounds left by other programs. Normally this done using the following BASIC commands:-

```
FOR I = 0 TO 24: POKE 54272 + I, 0: NEXT I
```

With the machine code routines installed, this can be replaced by the single instruction:-


```
SYS 49152, "CLEAR"
```

In addition, the CLEAR command resets the DISPLAY and PLOT commands, these will be explained later. Before any sound can be heard, the master volume must be set. Normally this is set at maximum with the following BASIC command:-

```
POKE 54296, 15
```

By using the machine code routines, the following command can be used:-

```
SYS 49152, "VOLUME", 100
```

The last parameter is the percentage of maximum volume, so 100 means maximum, 50 means half volume etc. There are only sixteen levels of volume, including silence, so the command will choose the volume level which is nearest to the percentage you give.

Setting the Waveform

There are four types of waveform available: Triangle, Sawtooth, Pulse and Noise. These are selected using the WAVEFORM command as follows:-

```
SYS 49152,"WAVEFORM",voice,"TRIANGLE"
SYS 49152,"WAVEFORM",voice,"SAWTOOTH"
SYS 49152,"WAVEFORM",voice,"PULSE"
SYS 49152,"WAVEFORM",voice,"NOISE"
```

The voice is set to 1, 2 or 3 according to which voice is required. If the pulse waveform is chosen then the mark/space ratio must also be set. This is done using the MARKSPACE command as follows:-

```
SYS 49152,"MARKSPACE",voice,mark/space ratio
```

The pulse waveform is rectangular in shape, the mark/space ratio represents the percentage of each cycle that the waveform is high. There are 4096 different mark/space ratios possible varying from zero to a hundred percent in steps of about 0.025 percent. A square wave is a pulse waveform with a markspace ratio of fifty percent, this is set by typing the following:-

```
SYS 49152, "MARKSPACE", 1, 50
```

The noise waveform is also rectangular in shape, at the beginning of each cycle a random level is chosen, the waveform stays flat at this level until the beginning of the next cycle. This is contrary to popular belief that the noise waveform is a random zig zag, if it was then noise would sound much softer.

Set the Frequency

The frequency or pitch of the waveform has to be set. There are two commands which can be used to do this. The FREQUENCY command sets the frequency of the voice in cycles per second (or Hertz) and is used as follows:-

```
SYS 49152, "FREQUENCY", voice, frequency
```

Thus setting the frequency to 256 will make the waveform play at middle C. Any frequency can be set in the range of a sixteenth of a Hertz up to 3984 Hertz in steps of a sixteenth of a Hertz. The formula given in the reference guide to convert frequencies to the relevant poke values is misprinted. Instead I have used the formula given in the SID chip specification which is:-

```
poke value = frequency * 16777216 / 1020000
```

The number 1020000 is the system clock frequency in Hertz and should be changed if this is different. The table of values given in the reference guide for converting musical notes into poke values is based on a clock of 1000000 Hertz and is therefore slightly wrong. To make matters worse, the table appears to have been calculated by first finding the poke value for 16 Hertz (the first entry in the table), rounding it down to a whole number and using this value to calculate the rest of the table. This produces inaccuracies in all the values in the table, the value given for concert A (440 Hertz) in the table actually produces a note of 438.8 Hertz. Fortunately, this is too small an error to be noticable, there is no need to rewrite all the music software based on this table! However, the FREQUENCY command uses the correct formula to work out the poke values.

The NOTE command also sets the frequency, like the FREQUENCY command, but allows note names to be stated. The command is:-

```
SYS 49152, "NOTE", voice, "note"
```


The note is a string, the first character is the octave number and the rest of the string is one of the following: C, C#, D, D#, E, F, F#, G, G#, A, A# or B. For example to set the frequency to A sharp on octave three on voice one the command would be:-

```
SYS 49152, "NOTE", 1, "3A#"
```

Yet again this is worked out using the correct formula and not the table of values in the reference guide.

The Amplitude Envelope or ADSR

The ADSR defines how the amplitude (or loudness) of a voice changes with time. There are four phases known as attack, decay, sustain and release, these are set using the ADSR command:-

```
SYS 49152, "ADSR", voice, attack, decay, sustain, release
```

When the gate is set (see later) the voice first goes through the attack phase. The amplitude starts at zero (silence) and ascends up to maximum volume. The attack parameter is the time taken to do this in milliseconds. Any of the following values can be used, if any other value is stated, the nearest legal value is chosen: 2, 8, 16, 24, 38, 56, 68, 80, 100, 250, 500, 800, 1000, 3000, 5000 or 8000. These are just the attack times stated in the SID chip specifications. In fact these values are slightly wrong as they are based on a 1.00 MegaHertz clock, the actual values can be calculated by multiplying these values by 1.00/1.02. However, this produces some awkward numbers and as the error is only slight, I have kept to the original values.

When maximum amplitude is obtained the decay phase is started. The amplitude then decreases to a value known as the sustain level. The sustain parameter is given as a percentage of maximum amplitude, not as a time. The amplitude then remains at this level indefinitely until the gate is switched off. The reference guide is misleading in the decay timings, the times given actually refer to how long the amplitude takes to fall from maximum to zero, if the amplitude had to drop only a third of the way down (to an amplitude of two thirds maximum) then it would take a third of the time. Thus the legitimate values for the decay depends on the sustain level as follows:-

Sustain level (% of max)	Legitimate decay times (milliseconds)
0.0	6,24,48,72,114,168,204,240,300,750,1500,2400,3000,9000,15000,24000
6.7	5,22,44,67,106,156,190,224,280,700,1400,2240,2800,8400,14000,22400
13.3	5,20,41,62, 98,145,176,208,260,650,1300,2080,2600,7800,13000,20800
20.0	4,19,38,57, 91,134,163,192,240,600,1200,1920,2400,7200,12000,19200
26.7	4,17,35,52, 83,123,149,176,220,550,1100,1760,2200,6600,11000,17600
33.3	4,16,32,48, 76,112,136,160,200,500,1000,1600,2000,6000,10000,16000
40.0	3,14,28,43, 68,100,122,144,180,450, 900,1440,1800,5400, 9000,14400
46.7	3,12,25,38, 60, 89,108,128,160,400, 800,1280,1600,4800, 8000,12800
53.3	2,11,22,33, 53, 78, 95,112,140,350, 700,1120,1400,4200, 7000,11200
60.0	2, 9,19,28, 45, 67, 81, 96,120,300, 600, 960,1200,3600, 6000, 9600
66.7	2, 8,16,24, 38, 56, 68, 80,100,250, 500, 800,1000,3000, 5000, 8000
73.3	1, 6,12,19, 30, 44, 54, 64, 80,200, 400, 640, 800,2400, 4000, 6400
80.0	1, 4, 9,14, 22, 33, 40, 48, 60,150, 300, 480, 600,1800, 3000, 4800
86.7	.8, 3, 6, 9, 15, 22, 27, 32, 40,100, 200, 320, 400,1200, 2000, 3200
93.3	.4, 1, 3, 4, 7, 11, 13, 16, 20, 50, 100, 160, 200, 600, 1000, 1600
100.0	0

Note that maximum sustain (i.e. 100%) means there is no decay and so there is only one possible value, namely zero. All the numbers in the table have been rounded down to the nearest integer except a few near the bottom left where fractions become significant. To use the table just find what sustain level you want either as a percentage or a poke value and the possible values for the decay are in the corresponding row. The decay parameter is just one of these numbers, any other number will result in the nearest legitimate value being chosen.

Once the gate of the voice has been switched off, the release phase is started even if the voice is still in the attack or decay phase. The release parameter is the time taken for the amplitude to fall from its current level (usually the sustain level) to zero, in milliseconds. It says in the SID chip specifications that the release time depends on the sustain level in much the same way as the decay rate. However, I have found by experimentation that this is not so; the release times given in the reference guide are accurate whatever amplitude the sound decays from. The possible values for the release are therefore 6, 24, 48, 72, 114, 168, 204, 240, 300, 750, 1500, 2400, 3000, 9000, 15000 or 24000 milliseconds.

Both the decay and release timings suffer the same inaccuracies as the attack timings due to the different system clocks. However, I have used the

1.00 MHz timings as the error is small and the numbers easier to work with.

In both the decay and release phases, the amplitude does not always fall at a constant rate to the target, either the sustain level or zero. The rate of descent slows towards the end of the phase rather than suddenly stopping. On an amplitude/time graph, the ends of both phases appear curved.

If a new attack phase is started before the release phase is complete, the attack will start from the current amplitude and not zero. This could be used to generate complex amplitude changes.

Preset Musical instruments

At the back of the Commodore 64 manual is a table of poke values for various different instruments. These can be invoked with the INSTRUMENT command which sets the ADSR, the waveform and markspace ratio, if necessary. Use one of the following commands:-

```
SYS 49152,"INSTRUMENT",voice,"PIANO"
SYS 49152,"INSTRUMENT",voice,"FLUTE"
SYS 49152,"INSTRUMENT",voice,"HARPSICHORD"
SYS 49152,"INSTRUMENT",voice,"XYLOPHONE"
SYS 49152,"INSTRUMENT",voice,"ORGAN"
SYS 49152,"INSTRUMENT",voice,"ACCORDIAN"
SYS 49152,"INSTRUMENT",voice,"TRUMPET"
```

Starting the Sound

Once all the parameters for the note have been set up, the attack phase can be started using the GATE command. Once the note is playing, the release phase can be started also by using the GATE command:-

```
SYS 49152,"GATE",voice,1:REM START THE ATTACK PHASE
SYS 49152,"GATE",voice,0:REM START THE RELEASE PHASE
```

After the release phase, the voice becomes silent again and the attack phase can be restarted, if desired. The program making the sound may want some accurate timing between turning the gate on and switching it off. This is normally done by using a FOR..NEXT loop as a delay, however a more accurate time can be obtained by using the DELAY command:-

```
SYS 49152,"DELAY",time
```

This command will stop the program for "time" milliseconds and then continue. Notice that the voice need not be stated, this is not a strictly a sound command, just a timed delay. The timer is accurate to seventeen milliseconds, good enough for most applications.

There are enough commands now for a simple sound program, the basic procedure for producing sound is summarised below:-

1. Set the master volume using the VOLUME command.
2. Set the waveform for the voice using the WAVEFORM command.
3. Set the ADSR for the voice using the ADSR command.
   (or use the INSTRUMENT command instead of steps two and three.)
4. Set the frequency using either the FREQUENCY or NOTE commands.
5. Switch the gate on using the GATE command.
6. Delay as long as required with the DELAY command.
7. Switch the gate off using the GATE command.

Only the parameters that change from note to note (usually just the frequency) needs to be set before the gate is switched on.

Sound Displaying Commands

Much of what I have said previously should be nothing new to most 64 programmers, most good sources on the SID chip should show the basics on how to produce sound. However, the more interesting aspects of the SID can only be appreciated by having some reasonable commands to monitor the goings on inside the chip.

One of the problems with the SID chip is that the registers are write only, that is if the registers are read using the PEEK command, the value returned would be incorrect. The probable reason for this apparent oversight by Commodore is to simplify the design of the chip. The way around this is to keep track of what has been poked into the registers in a separate part of memory known as a shadow. This resembles the registers in that there are twenty seven of them. Whenever one of the new commands is used, this shadow is updated and can be read by using the USR function:-

```
PRINT USR(54272+R)
```

This will print the contents of the sound register 'R'. It is similar to the PEEK command, however USR cannot be used to read any part of memory other than the SID registers. Alternatively, the DISPLAY command can be used to

keep an up to date picture of the SID chip permanently, even in direct mode.

```
SYS 49152,"DISPLAY",1:REM SWITCHES ON THE DISPLAY
SYS 49152,"DISPLAY",0:REM DISABLES THE DISPLAY
```

When the DISPLAY command is used, the contents of SID registers zero to twenty four are shown in decimal and binary down the right hand side of the screen. After any of the new sound commands is executed, the display is automatically updated.

There are two locations in the SID chip which can be read. These give information on the current state of the waveform and the ADSR envelope generator.

```
PRINT USR(0):REM Prints the current state of the envelope of voice 3.
PRINT USR(1):REM Prints the current state of the waveform of voice 3.
```

Both functions will return a value between zero and one corresponding to the minimum and maximum of either the amplitude or the waveform respectively. Alternatively, there is a built in oscilloscope command called PLOT which is more useful. Once activated, the current state of the either the envelope or waveform of voice three is plotted on the screen using the "quarter square" graphics, giving a horizontal resolution of eighty "pixels". Use one of the following commands:-

```
SYS 49152,"PLOT","OFF"
SYS 49152,"PLOT","OSCILLATOR3",sweep time,type
SYS 49152,"PLOT","ENVELOPE3",sweep time,type
```

The computer scans from the left of the screen to the right, plotting the values as it goes. The "sweep time" parameter represents the time taken for one full sweep of the screen, in milliseconds, this is accurate to the nearest 1334 milliseconds. The "type" parameter is one of the following strings: "FLYBACK", "CLEAR" or "SCROLL". If "FLYBACK" is chosen, once the computer reaches the right hand side of the screen, it will "flyback" to the left of the screen and start again. This will rapidly lead to a cluttered screen, so by using the "CLEAR" type instead, the screen will be cleared at the end of each sweep. The best type to use is "SCROLL" which will scroll the graph horizontally once the right hand side is reached.

The easiest mode to use is "ENVELOPE3", usually each sound lasts long enough to produce an accurate amplitude graph. It should look like the usual

ADSR graphs drawn in the reference guide and other sources. Try setting a large time for the ADSR, the curvature at the end of the decay and release phases should be easy to see.

The "OSCILLATOR3" mode is not much use for normal sound, more interesting effects can be seen by using infra sonic frequencies, in the range of a sixteenth of a Hertz to about ten Hertz. The shapes of the sawtooth, triangle, pulse and noise waveforms can be easily seen using these frequencies. Try plotting the noise waveform at low frequency, notice that each cycle is at a constant level and not a zig zag as popularly believed.

When using the PLOT command, it may not be desirable to hear the output. The voice can be silenced with the OUTPUT3 command:-

```
SYS 49152,"OUTPUT3",0:REM SWITCHES OFF OUTPUT OF VOICE 3
SYS 49152,"OUTPUT3",1:REM SWITCHES ON OUTPUT OF VOICE 3
```

Synchronisation

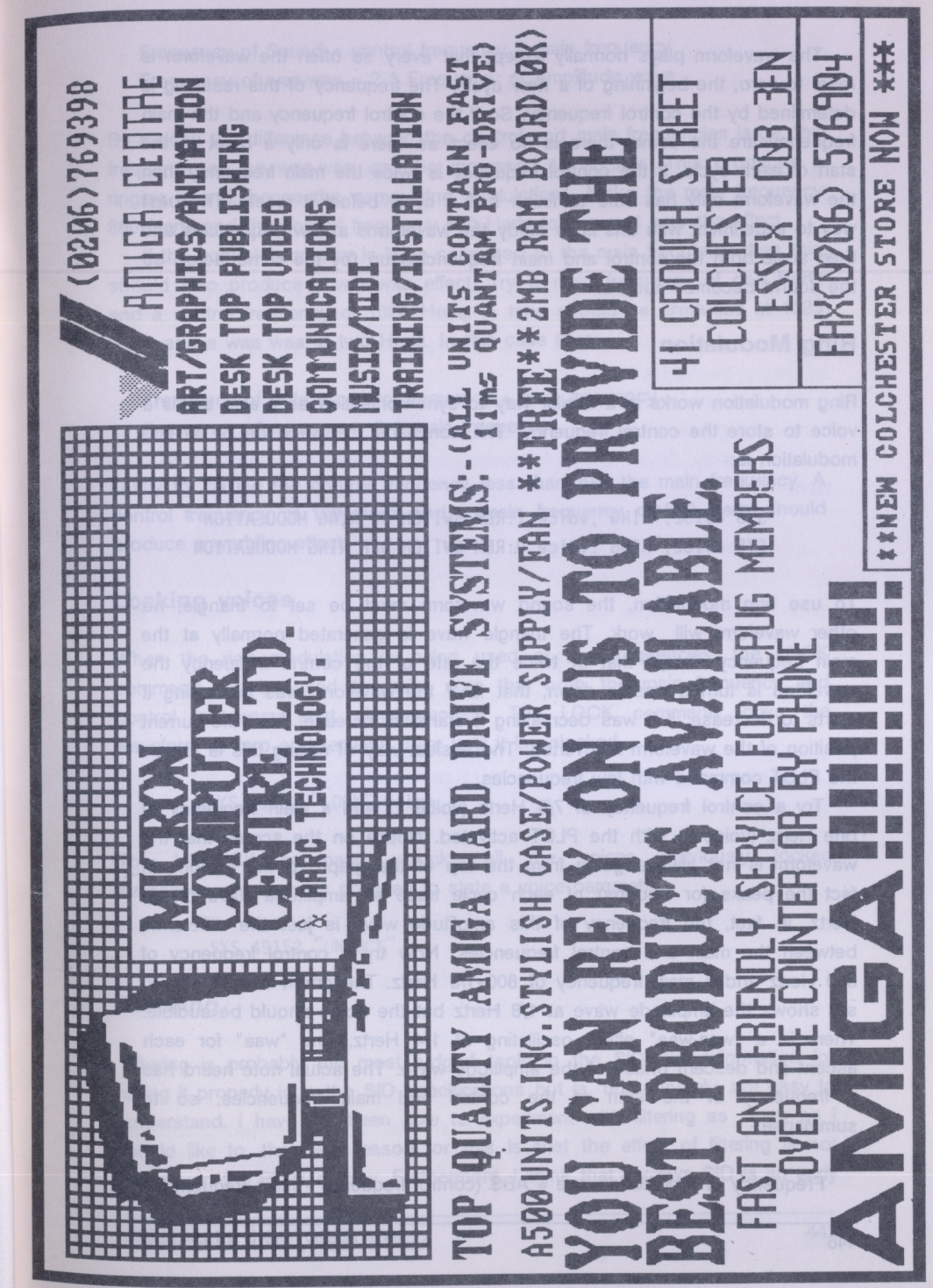
I have tried to obtain information on synchronisation from a variety of sources without much success and have resorted to experimentation with the PLOT command. The synchronisation of a voice can be switched on or off using the "SYNC" command:-

```
SYS 49152,"SYNC",voice,1:REM SWITCH ON SYNC
SYS 49152,"SYNC",voice,0:REM SWITCH OFF SYNC
```

When synchronisation is set for a voice, one other voice is stolen. This stolen voice is used to hold the control frequency, no other parameter need be set. The stolen voice is not much use for producing sound of its own so it is usually switched off. The voices and the corresponding stolen voices are shown below:-

Voice with SYNC bit set	Voice stolen to store control frequency
1	3
2	1
3	2

The effects of synchronisation can be seen easily using the PLOT command with low frequencies as explained earlier. In this case, don't forget to use voice three for the main voice and voice two as the stolen voice.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The waveform plays normally except that every so often the waveform is reset to zero, the beginning of a new cycle. The frequency of this resetting is determined by the control frequency. So if the control frequency and the main frequency are the same, there is no effect as there is only a reset at the start of each cycle. If the control frequency is twice the main frequency then the waveform only has time to finish half a cycle before it resets. The best way to experiment with this is to study the waveforms at low frequencies and then scale both the control and main frequencies up (by the same factor) so the sound becomes audible.

Ring Modulation

Ring modulation works in a similar way to synchronisation as it also steals a voice to store the control frequency. The command to switch on or off ring modulation is:-

```
SYS 49152,"RING",voice,1:REM SWITCH ON RING MODULATION
SYS 49152,"RING",voice,0:REM SWITCH OFF RING MODULATION
```

To use ring modulation, the sound waveform must be set to triangle, no other waveform will work. The triangle wave is generated normally at the main frequency except that at twice the rate of the control frequency the waveform is turned upside down, that is if the waveform was increasing it starts to decrease, if it was decreasing it starts to increase. Also the current position of the waveform is inverted. The easiest way of seeing this is to use the PLOT command with low frequencies.

Try a control frequency of 7/8 Hertz (voice 2) and a main frequency of one Hertz (voice 3) with the PLOT activated. Notice on the screen that the waveform is not always going from the top of the graph to the bottom, in fact the peaks (or troughs) of each cycle trace an amplitude wave of 1/8 Hertz. In fact, the frequency of this amplitude wave is just the difference between the main and control frequencies. Now try a control frequency of 800 Hertz and a main frequency of 800+1/8 Hertz. The graph on the screen still shows the amplitude wave at 1/8 Hertz but the noise should be audible. There is a "waa-waa" effect oscillating at 1/4 Hertz, one "waa" for each ascent and descent phase of the amplitude wave. The actual note heard has a frequency of the sum of the control and main frequencies, so to summarise:-

Frequency of Amplitude wave = ABS (control frequency - main frequency)

Frequency of Sound = control frequency + main frequency
Frequency of waa-waa = 2 * Frequency of Amplitude wave

By making the difference between the control and main frequencies large, the frequency of the waa-waa can be increased to audible. This produces a ringing sound, hence the name "ring modulation". Make the main frequency 880 Hertz and the control frequency 660 Hertz to see and hear the effect.

If the control frequency is large compared to the main frequency then this should also produce a waa-waa effect. Try a main frequency of one Hertz and a control frequency of 1024 Hertz. A tone should be produced at 1025 Hertz and a waa waa at two Hertz. In this case then:-

Frequency of note = control frequency + main frequency
Frequency of waa-waa = 2 * main frequency

Lastly try having the control frequency less than half the main frequency. A control frequency of 100 Hertz and a main frequency of 880 Hertz should produce a warbling effect.

Locking voices

When the ring modulation is being used at low frequencies, the LOCK command can be used to make sure that both the main frequency and control frequency start simultaneously. The LOCK command locks the waveform at zero and remains there until it is unlocked.

```
SYS 49152,"LOCK",voice
```

The UNLOCK command unlocks all the voices previously locked simultaneously, there is no need to state a voice parameter.

```
SYS 49152,"UNLOCK"
```

Filtering

Filtering is probably the most fudged topic in the SID, the information for using it properly is in the SID specifications but is, unfortunately, not easy to understand. I have not been able to experiment with filtering as much as I would like to, the main reason for this is that the effect of filtering is not shown on the PLOT display. Furthermore, I think that my own SID is an early

version which is rumored to have faulty filters. The following information I believe to be correct and was gleaned from the SID specifications.

First of all I should try and explain about harmonics, which is dealt with in the reference guide. Most waveforms which repeat themselves cyclicly can be made up by adding or subtracting sine waves of varying intensity, their frequencies being multiples of the original waveform. The sine wave which oscillates at the waveform's frequency is called the fundamental, the sine wave which has a frequency twice the fundamental is called the second harmonic, three times the frequency the third harmonic etc. The waveforms in the SID have an infinite number of harmonics, however only the lower harmonic numbers have any real significance, the higher the harmonic frequency, the less effect it has.

The triangle wave looks very similar to a normal sine wave in shape, thus the most significant sine wave is the fundamental, the harmonics decrease in strength rapidly. Only the odd harmonics are used as shown in the following table:-

Harmonic	Strength	Polarity
Fundamental	1	+
3rd	1/9	-
5th	1/25	+
7th	1/49	-
Nth (N odd)	1/(N*N)	SGN((((N+1)/2)AND1)-0.5)

I have given the polarity column just in case you have an extended BASIC with graphics and wish to plot the graph. This is done by adding or subtracting (according to the polarity column) the various sine functions. For example, taking the first four harmonics would need the function:-

```
SIN(x)-(1/9)*SIN(3*x)+(1/25)*SIN(5*x)-(1/49)*SIN(7*x)
```

The more sine functions added, the closer the function is to the triangle wave. The sawtooth wave can be similarly decomposed into sine functions as follows:-

Harmonic	Strength	Polarity
Fundamental	1	+
2nd	1/2	-
3rd	1/3	+
4th	1/4	-
Nth	1/N	SGN((N AND 1)-0.5)

All the harmonics are present this time, the harmonics are stronger than in the triangle wave. A pulse wave with a markspace ratio of 50% has only odd harmonics as in the following table:-

Harmonic	Strength	Polarity
Fundamental	1	+
3rd	1/3	+
5th	1/5	+
Nth (N odd)	1/(N*N)	+

I'm not sure what the harmonics of pulse waves with other markspace ratios look like, I've no doubt that they could be worked out somehow.

I have deliberately left out the noise waveform as it is not strictly cyclic, it assumes a new random level at the start of each cycle, and so cannot be broken down into harmonics.

The purpose of explaining harmonics is to make it easier to understand how a filter affects a waveform. Essentially a filter covers a whole band of frequencies and reduces their strength, any harmonics of a particular waveform in this band are cut down, changing the shape of the waveform. There are three main commands which are needed to set up a filter.

The "FILTERVOICE" command defines which voice is to be fed through the filter. Any number of voices can be fed through, although there is only one filter.

```
SYS 49152, "FILTERVOICE", voice, 1
SYS 49152, "FILTERVOICE", voice, 0
```

The cutoff frequency, which applies to all voices set by the "FILTERVOICE" command, has to be set for the filter to work, this is done using the "CUTOFF" command:-

```
SYS 49152,"CUTOFF", frequency in Hertz
```

The way that the command converts the frequency into a poke value was not easy to find, but it is in the SID specifications. The maximum cutoff frequency of the filter is given by dividing 2.6E-5 by the capacitor value connected to the SID chip. From the circuit diagram this is 2200 pF (or 0.0000000022 Farads.) Hence the maximum cutoff frequency is 11818 Hertz. The minimum cutoff frequency is nine octaves below this at 23 Hertz. Therefore the poke value can be calculated by:-

```
poke value = (frequency - 23) * 2047 / (11818 - 23)
```

The type of filter has to be set using the "FILTERMODE" command:-

```
SYS 49152,"FILTERMODE","CLEAR":REM SWITCH OFF
SYS 49152,"FILTERMODE","LOWPASS":REM LOWPASS FILTER
SYS 49152,"FILTERMODE","BANDPASS":REM BANDPASS FILTER
SYS 49152,"FILTERMODE","HIGHPASS":REM HIGHPASS FILTER
SYS 49152,"FILTERMODE","NOTCHREJECT":REM LOW & HI PASS
```

Filtering affects all of the harmonics of a waveform depending of the type of filter used. The lowpass filter ignores all harmonic frequencies lower than the cutoff. Any harmonic frequency that is higher is cut down by twelve decibels per octave, or in terms of a formula:-

```
% max. amplitude = 100*10^(1.2* -LOG(FREQUENCY/CUTOFF)/LOG(2))
                        (only if FREQUENCY > CUTOFF)
```

The highpass filter passes any frequency higher than the cutoff and cuts down frequencies lower than the cutoff at a rate of twelve decibels per octave:-

```
% max. amplitude = 100*10^(1.2*-LOG(CUTOFF/FREQUENCY)/LOG (2))
                        (only if FREQUENCY < CUTOFF)
```

The bandpass filter cuts down frequencies either above or below the cutoff frequency at a rate of six decibels per octave. The formula is:-

```
% max. amplitude= 100*10^(0.6*-ABS(LOG(FREQ/CUTOFF)/LOG(2)))
```


I cannot guarantee the accuracy of the above information or the formulas, as I have no means of testing them, however they appear to agree with the SID chip specifications.

Finally, there is a feature which is related to filtering known as resonance. This is set using the "RESONANCE" command:-

```
SYS 49152,"RESONANCE",value
```

All I know about resonance is that it can be set from zero to fifteen. Frequencies near to the cutoff frequency are strengthened according to the resonance value, zero has no effect while fifteen has maximum effect.

I would like to encourage programmer's to try out these commands, they are designed for experimentation with the SID rather than any serious use. Even if you are a seasoned machine code programmer, using BASIC in conjunction with these commands is an easy way of testing sound effects, the DISPLAY command will show what poke values are needed. The SID chip is a powerful chip greatly underused because of its complexity, I hope that many of its features are now easier to understand.

BRIAN'S BLUNDERINGS

by Brian Fowler

Hello again, reader. No 'C' this time (I didn't like the tone of 'Update on Tidy.c' last time - and I'm still composing a suitable reply). Instead, perhaps we could share some of the problems new Amiga owners may be having.

George Crawshay wrote to me from Lovelace Lodge, Woodland Drive, East Horsley,Surrey KT24 5AR, and I thought it might be interesting for other Amiga owners to read what he has to say. It's worth pointing out in passing that although George sent me a disk with a file containing his letter, I still had a lot of trouble converting his file to a format acceptable to the Newsletter. Why ? - because the file he sent me was in "Kindwords" format. None of the wordprocessors/text editors I have would look at it! The standard AmigaDOS command "type" produced rubbish, because the file was full of control characters produced by Kindwords.

Please obey the editor's rules and submit your articles/letters on disk - making sure that the file contains no nasty control characters from your word processor. How do you tell? - easy! On an Amiga or PC clone,

```
A>type yourfile
```

On any of the CBM 8bit machines, you need a short BASIC program

```
10 open 8,8,8,"yourfile,s,r"
20 get#8,a$
30 sr=st
40 print a$;
50 if sr goto 70
60 goto 20
70 close 8
80 end
```

(what you do on the seven and a half bit machines I've no idea - write to Joe Griffin about that). On all machines, the screen output should be intelligible and without extraneous characters - if this isn't the case, explore your word processor's output options - choose something like 'print to disk' or 'ASCII save' if possible. Anyway, back to the plot. I have split George's letter into questions, and where possible I offer my answers.

"Like Mr. Harry Burrin who wrote in the May/June issue, I have recently upgraded from a C64 to an Amiga, and what a frustrating experience it has been so far! It is almost unbelievable that two machines from the same stable can differ so sharply in their handling. Little by little I am coming to terms with it, aided and hindered in equal volume by the Amiga manual, but I have a number of problems and queries which so far have resisted solution, and I would be most grateful for any help which readers may be able to supply.

DiskDoctor: Recently a disk on which I have been working has become corrupt. A requester appears telling me to use DiskDoctor, but this is not much use because I can't find it anywhere on my Workbench. Coincidentally the August issue of 'Amiga Format' has a paragraph on p.90 referring to DiskDoctor and saying "Full details of Disk Doctor can be found in the user's manual that came with your machine." Needless to say, to date I can find no reference whatsoever to the utility in my manual! By another coincidence the August issue of 'Amiga Computing' comes with a disk containing a program called DiskSalv. This, according to the instructions, is loaded from CLI. Not on my machine, it isn't; CLI just says it is an unknown command." [Diskdoctor is a CLI only command, so place the troubled disk in your external drive (df1:) and then at a CLI (or SHELL) prompt, type

```
Diskdoctor Df1:
```

I have an early A1000, which came with version 1.1; I upgraded to version 1.2 and later to 1.3, and DiskDoctor is documented in both Enhancer manuals; page 29 in the 1.2 manual and page 2-9 in the 1.3. To use DiskSalv, you should either copy it to a directory in your machine's path, such as c:, or you should tell the Amiga where to find it - i.e. if DiskSalv is in the root directory on the disk in your internal drive, type

```
df0:DiskSalv
```

if it is in a directory called 'stuff' on the disk in df1:,

```
df1:stuff/DiskSalv]
```

"Disk Capacity: On the C64 one is always told how many free blocks are left on a disk. The List command on CLI gives me all sorts of information about the files on a disk but appears to omit this vital piece of information. Is there any easy way to determine the free space on a disk?" [Don't use LIST, use

INFO. At a CLI or SHELL prompt, type INFO and press <RETURN>. The output gives the size of disk(s), number of blocks used and blocks free (amongst other things). To list file sizes in blocks rather than bytes, use the 1.3 LIST command with the option BLOCK - type in LIST BLOCK and press <RETURN>]

"Graphics (1): The C64 had a most useful series of graphics for constructing grids, which I used extensively in creating strategy game programs. There seems to be no equivalent on the Amiga. One can use the LINE statement, I suppose, but it needs boring mathematical calculation to locate the grid precisely to fit in with screen characters. I also miss the "button" and "buttonhole" characters, and especially the playing card suits, for which there are no Amiga equivalents.

"Graphics (2): By shifting the memory location of the standard C64 characters I was able to construct a program for re-defining the output from the keyboard, turning little-used characters into any shape I wanted. Can this be done on the Amiga? The only ways I have discovered so far of creating the sort of static shapes I need are through PSET (very slow) and Bobs, (which flicker annoyingly)."

[In answer to both the above points, I would say "yes and no". It is true that the default system font does not have 64 style graphics, but as with so many things on the Amiga, you can change things to suit your purpose. In the ICPUG Amiga library are a number of disks with additional fonts. Simply copy the font you like into your FONTS: directory and it is available for use. Some programs have a menu choice that allows you to use a different font, but AmigaBasic does not; however by using a program from the library called INSTALLFONT, you can tell the system to use a specified font rather than the default. At a CLI prompt type in

```
installfont newfont.font
```

(assuming that installfont is in the path (see above) and that your preferred font is called 'newfont')

What if you don't have a font with the desired characters ? - Easy, edit an existing font and save it under a different name. Use "Fed" for this - it lives on your Extras disk.]

"Windows: The output window on AmigaBasic starts at a height of 180 pixels. I know that it is possible to extend this to the whole screen because I have done it before, but I don't know how I did it. If I use the WINDOW statement with more than that number I get an Illegal Function call. [Don't you just hate programs that assume you want a certain size of window? A

quick and dirty way round this is to use a utility called SIZE, again in the ICPUG library, which allows you to activate any sizable (i.e. with a sizing gadget) window and then expands that window to fill almost the whole screen.]

"Word-Processing: Not needing a very sophisticated wordprocessor, I invested in KindWords. It's generally O.K., but has some very curious deficiencies. For instance, why does it not indicate the number of lines used, or is there some secret I haven't discovered? And while I can open and save files to my heart's content, how do I delete a file, apart from going to the Workbench and using CLI or KILLing it in Basic? Then we have the curious siting of Preferences on the Superfonts disk rather than on the main one, which baffles me; every time I load Kind Words, even with SuperFonts in the other drive, I get a message telling me to set the date using Preferences, even after I have just set it! (If I don't reset the date every time my letters are recorded in the directory as written on the last date used.) And why does it take so long to access the files for OPENing and SAVEing?" [I don't have this product, so cannot comment. I'm sure our readers can oblige, though.]

"Printing: With the acquisition of the Amiga I decided to invest in a dot-matrix printer, the Star LC-10 (I already had the DPS 1101 daisy-wheel). This has not caused too much difficulty, but it does have an annoying habit of spewing out the paper when it wants to rather than when I want it to. Is there any way to defeat the automatic ejection? Also, in printing a multi-page document, although the screen tells me that I have to insert a new page and click on 'OK' to resume printing, when I do this the new page is just ejected completely from the printer, while the legend on the screen is replaced with a large black rectangle. So I now have to print out each page in entirely separate operations. Finally, what connecting cables do I need to use the Star with the C64 and the 1101 with the Amiga? Any help that anyone can give me with these problems will be much appreciated." [I don't have a Star either, but are you sure that Preferences knows about your printer? Maybe a reader can help. As for connecting cables, I understand that the 64 Emulator II allows connection and use of a 64 printer with the Amiga. I don't know whether the Star is a parallel or serial printer; either way firms like Meedmore or Brainboxes can help with interfaces and cables.]

George closes his letter by asking for any help or advice we can give him; my contribution is above - how about our readers helping George also.

What is ARC ?

I have had a number of enquiries recently along the lines of "What is ARC?".

I can set your minds at ease immediately - this ARC has nothing whatsoever to do with Noah and lots of animals! ARC is in fact a very useful program which is available for a number of machines, including the PC, the Amiga and the 64.

As far as I am aware, the versions of ARC available for the above machines are all shareware, which basically means the software is freely available, and you are honour bound to send money to the author(s) if you decide to use their offerings.

I suppose the main use for ARC (and programs like it) is to compress and combine files prior to transmitting over the phone lines. Afterall, the shorter your phone call, the lower your bill. Many of you reading this will know that I edit areas on both Compunet and CIX for ICPUG. Both these systems allow you to dial up and download free software direct into your computer. For the reason given above, most of this software appears as ARCed files or groups of files. As an example, you may be interested in downloading a game for the PC. It may well appear as GAME.ARC in the system directory, and this is the name you will use when you request a download. Once downloaded, you can use ARC to unpack the contents of the ARChive, using a command like

```
A>arc -x game.arc *.*
```

which will write all the constituent files from the ARChive to your disk. You may well end up with something like

```
GAME.COM
GAME.DOC
GAME.SRC
READ.ME
```

as well as the original ARC file. You will find that the ARC file probably takes up some 30-50% less disk space than the unARCed files do.

As I said earlier, ARC is also available for the C64. ARCing a complete 1541 disk (35 files, 1 block free) left me with one ARCfile and 239 blocks free. Quite a worthwhile saving, I think you'll agree. The version of ARC I have for the 64 comes with a 'front end' which allows the more naïve of us to use ARC with a minimum of fuss. If there is enough interest I will send the programs to the 64 librarian to consider them for inclusion in the library.

COMPUTE!'S AmigaDOS Reference Guide

by Peter Dean

For those of you who don't like long-winded reviews "buy it". For those with more time, read on.

Having been hobby computing for some years, but still being a novice this review will be somewhat biased towards just starting out with the Amiga. This is the first book for the Amiga that I have bought, other than those supplied with the machine and will to some extent reflect this. In choosing this book I obviously looked at others providing similar data e.g. The AmigaDOS Manual by Bantam, but as with most Amiga books the price played a big part in this decision. The book just mentioned by Bantam costs in the region of £25 whereas the review book was more reasonably priced at £14.95.

The book itself is soft covered in a spiral ring format, that makes it easy to lay flat and stays open at the appropriate page. The paper and printing are of a good quality.

Now for the contents. The book is split into two sections the first explains the use of AmigaDOS and the second contains the reference section. Section one contains seven chapters on the following subjects:-

Chapter 1 starts with a short introduction followed by step by step instructions on making a CLI disk with both one and two disk drive systems. There are references to DOS version 1.0, 1.1 and a Kaleidoscope disk which are not applicable to the later DOS version 1.2 but this does not seem to detract to much from the overall readability.

Chapter 2 covers the CLI environment very well but does include certain anomalies e.g. The maximum screen size for the CON command being 640 x 200 is not correct for PAL systems; it should be 640 x 256

Chapter 3 is all you wanted to know about the filing system, volume names, directories / sub-directories, routes to files and a large section on pattern matching (not as simple as the CBM 64).

Chapter 4. Devices in detail would be a good description. Both physical and logical devices are covered e.g. DF0: is an example of a physical device while DEVS: is a logical device. Also covered in this chapter are the communications ports and how to use them through DOS commands, with

the help of PAR: and SER: (device names for the parallel and serial ports), and other devices for output such as PRT:, CON: and RAW:. Another useful facility covered by this chapter is redirection of input and output. This explains how to redirect input and output to devices other than the norm, e.g. If you typed the command DIR in an open CLI window the output would normally appear in that window but if you amended the command thus:

DIR > PRT:

then the output would be sent to the printer.

Chapter 5. Command sequence files. The startup-sequence file in the :S directory on the workbench disk is a prime example of these. This chapter goes into making your own command sequence files in detail, a very powerful and time saving exercise.

Chapters 6 and 7 between them cover the two file editors on the workbench disk in good detail and each has a command reference section at the end of the chapter. This reading is a must if you intend to make your own command files.

Now we come to the second section of the book. This section is the reference section and as such covers all AmigaDOS commands very comprehensively, with usually a whole page or more devoted to each command. At the end of this section covering commands is a shorter section on the additions and changes to AmigaDOS 1.2 from the earlier versions. This is then followed by the appendices containing notes on the workbench disk contents and a list of the files therein. And there's more; now we come to AmigaDOS error messages (so what the manual with the Amiga has those in; there are not as many as are included in this book!).

Finally the inevitable index.

Conclusion

I found this book to be of immense value to me and I think that most new and probably older Amiga owners will as well. It made understanding some of the contents of the manual with the V1.3 enhancer software a lot easier and is still of value even if you have the V1.3 workbench because the V1.3 manual only covers the differences and not bulk of AmigaDOS.

WHO'S WHO

David Peter Griffin, Vice-Chairman, a man of many hobbies and 7½ bits.

David made his debut on 8th January 1950. He was a chubby baby, with a somewhat pugnacious expression, which earned him his nick-name, "Joe" after Joe Becket, a boxer of the 1920's. He had his first taste of beer at the age of three, when in the care of his grandfather, on Coronation day. He found it revolting but has now changed his mind.

After the village school, he attended the local grammar school, which he represented at cross-country running. He gained a weight-lifting record and took up shooting. In between these activities, he did not entirely neglect the academic side of life, gaining a place at Peterhouse, Cambridge. He rowed for his college and still uses a tankard won for single sculls. He also coached the Cambridge Coxwains crew that beat Oxford in 1971. In between-whiles, he did just enough work to graduate.

We then sent him to Coventry. He first worked for Jaguar then CovRad. Here he started his present hobbies of photography, badger watching and morris dancing. After sticking it out in Coventry for seven years, he had had enough of city life so got a job nearer home. Watching and photographing deer, fox and badger now became important occupations, and he became involved in the activities of the Horsham Natural History Society. At his next job in Crawley he first met the PET. He soon joined ICPUG and bought an 8096. He had little time to use it, as its advent coincided with an increase in conservation work, pond reclamation, ride clearance and coppicing.

Joe has always had an interest in farming. In school holidays he worked on a local farm. In the Coventry days at holiday times, he would get up at 4.30am on Christmas and Boxing day, to help his brothers with the feeding and bedding down of 200 dairy cows. Latterly the Pet was used to prepare the breeding and production records of the 270 cow dairy herd looked after by his brother, Chris.

Meanwhile, Joe had become Pet Librarian of ICPUG. In 1988 his job went to the USA but Joe bought a 128, became Vice-Chairman of ICPUG and is now working near Guildford. This year he and Chris spent their holiday in America, visiting his former colleagues in North Carolina and ICPUG friends Betty and Richard Clay.

Most days, the post brings some disks, or other ICPUG correspondence, which has to be fitted into his very busy schedule, so you can now see why Joe is not always able to attend the computer related functions that his friends think he should!

EXPERIENCES WITH A VIC 20

by John Wickins

I have often felt a pang of sympathy for VIC 20 users who write in to the Newsletter or magazines like CCI and YC to say they need help or advice about what they can do with their machine (no comment from you please Mr. Ed). As a result, and because I want to contribute something to ICPUG, I decided to tap out a record of my personal evolution in the use of home computers from VIC 20 to CBM 128 (so far). Sagas of the CBM 64 and CBM 128 are intended for later contributions but I must stress here and now that I am not a programmer nor am I a games fanatic. I suppose my particular quirk is that I like to ensure that any machine in my possession works properly and can be used to a reasonably full extent.

About four years ago I was presented with a VIC 20, a CBM 1525 printer (you know, one of those slow, noisy jobs which doesn't print true descenders), a four slot mother board, an 8-32k switchable RAM cartridge and some pretty primitive software. Of course it had all the necessary peripherals , datacassette, B&W TV etc to make it work and it was soon up and running. Having assured myself that the thing worked, I put it away and tried to forget it as computers didn't rate too highly in my list of priorities for family life.

I felt my action was justified when my colleagues at work shook their heads sadly as I told them of my aquisition, and muttered comments like - 'Rotten BASIC', 'The Spectrum is better', and 'The Acorn Electron is the one you REALLY want'. Incidentally, the guy who made this last crack actually bought one and has since eaten his words, and his hat, several times over!

It was after I started using an Apricot Xen PC at work (Wordstar, Minitab, dBase III, Microchart etc) and seeing the children using the BBCs at school that I began to think again about the VIC 20. Would the ability to use several different types of computer confer the same advantages as driving several different types of car, you know, it helps one get the hang of new things quicker? Would the children benefit? To find out, the VIC was resurrected but before I figured out where to plug in the printer, the children were blasting, adventuring, driving and flying everything in sight (Weetabix Titchies, Tomb of Drewan, Voodoo Castle, Trader, Ace, Flight Path 737, Golf and Boss Chess). But, I asked myself when they had gone to bed, could this machine do anything else, anything useful? All my subsequent attempts to program it or type in listings drove me to distraction, however a few pieces of software that had come with it seemed as if they might have some potential.

The first was Home Office from Audiogenic, which consisted of a word processor VICPRO on one side of the tape and a database VICDATA on the other. Being dated 1982 the package was very limited by today's standards but with the 32k RAM in place there was enough memory for 291 lines of text in the wordprocessor and 285 entries in the database, wow! Editing facilities were minimal, a line had to be retyped if it was to be altered, but the wordprocessor did save a lot of time with the children's Christmas thankyou letters to n relatives (where n = a lot). It wasn't until the Easter reunion that they found out they all had the same letter. The database could sort and search but was otherwise far too limited and was never put to use.

The next likely candidate was Home Finance, also from Audiogenic (1981), a compex tape-based package which ran on an unexpanded or expanded VIC. This four program package would record, change, and delete income and expenditure items in 16 categories, give monthly and yearly totals, graph expenditure profiles and present a budgeting program to identify excessive expenditure. Once run it became clear that the expenditure categories were immutable (and americanised) and did not really relate to the slots my expenditure fell into. Examples included education, medical/dental, gifts and entertainment (I ask you, with 3 kids?).

The only bright spots on the horizon were (a) a morse code interpretor program that, with the aid of a black box interface made up for me by a local radio Ham, was able to convert the morse code emanating from my ancient short wave radio (the kind you see in Lancaster bombers in World War 2 movies) to text on screen; and (b) a cartridge called VICSTAT from Datatronic of Sweden. The excitment of seeing coded weather reports appear on my screen lasted a full 90 seconds. however I felt marginally more inspired when I got a Ham code book and picked out a CQ DX call from Lithuania.

The Vicstat's demo produced reasonable graphics and bar charts and with much effort I was able to produce a simple program incorporating the inbuilt plot and statistics commands to illustrate the basic concepts of graphs, histograms and correlations to my 8 year old. Functions included in the cartridge were mean, standard deviation, variance, correlation and regression (linear only), x-y and bar plots. Had I been more skilled in BASIC this cartridge could have been made to provide a very useful and simple statistical analysis program. It might yet if I can find an interested programmer to help me with the BASIC bits.

At this stage of the proceedings I was commissioned to write a lengthy review of Crustacean nutrition (lobster food OK?) and desperately needed a better wordprocessor package (the typist who does not howl at my writing has yet to be born). As luck would have it, while browsing in the local

computer shop, I saw a wordprocessor cartridge in a pile of discarded VIC 20 software. A glance at the manual told me that this must be the definitive wordprocessor for the VIC 20. The name was Wordcraft 20, once again from Audiogenic. It was fantastic, at last I had something that was really usable. Memory, I found could be significantly improved from some 7000 characters to nearly 15000 characters by installing 16K of RAM (it didn't run with 32K), and the program supported double spacing and underlining on the 1525 printer. Facilities were available for block copy and move, find and exchange, centring, normal and decimal tabs, justifying, merging and fill documents. The latter allowed me to build up a kind of database utility for the bibliography and reference lists.

With the money from the review article I purchased an Excelerator disk drive which came with a red coloured Freeze Frame cartridge that I put to one side in case I ever splashed out on a CBM 64. Now apart from a printer that would print true descenders, the only thing I needed to complete a useful suite of programs for the VIC was a spreadsheet. By this time (1986) all VIC stuff had long since disappeared from the shelves of the shops in my area but the whole family was now having fun with the VIC and I was being badgered to upgrade to a 64 so they could play the better games that 'everyone else has, Dad'.

One day feeling a bit like an archaeologist delving into the past, I unearthed from the back of a shop a disk based spreadsheet for the VIC called Simplicalc from Commodore. The geezer behind the counter couldn't conceal a sneer as he said "Who on earth would want that, no one uses a disk drive with the VIC". I resisted the temptation to inform this Phillistine that I knew a dealer who apparently still jealously guards 3 or 4 brand new VIC 20's, refusing to sell them to anyone unless they have a thumping good reason for needing one, like in a Ham radio shack or for controlling a vast train layout.

I admit I was under no illusions about the likely limitations of such a package but at least it ran without any problems. It needed the 16k expansion and had a capacity of 1200 cells. The most serious problem was the limits to replication; it could not replicate rows from one column into different row numbers in another column and vice versa. The printout was a bit untidy and often contained fragments of dotted lines separating the columns. Even so, it made tabulation easy and I remained happy for a while producing several technical reports and reviews with the VIC until one winter's day in 1987 I was offered a CBM 64 and a 1520 plotter for under the ton.

Well, I still had nowhere to stick my little red Freezer cartridge so I

upgraded. Like I said, I can't bear to have equipment laying around useless. In any case Christmas was not far off and a few new games as stocking fillers would ease the strain of wondering what to buy the youngsters.

So, if anyone wants to know what happened next, let me know and I'll write some more.

DIAMOND COMPUTER SYSTEMS LIMITED

In the last issue of this Journal, the Editor expressed a negative opinion of the aforementioned company. Considerations, mainly of space led this to being part of the Editorial, thereby giving it an unwarranted prominance. It is not the policy of ICPUG to suppress such opinion, however, neither does ICPUG support it, being completely impartial in both ways.

The Editor would like to apologise to Diamond Computer Systems for both the prominence of the comment and any offence it may have caused. As with many things the extent of the grievance was over-inflated by the heat of the moment.

It should also be stated that Diamond did invoice the goods, rather than insist on pre-payment, and that a discount was also provided. Diamond and its associated companies have in the past enjoyed a long and profitable relationship with ICPUG, and we would like to see that relationship continue and grow.

Nuff Sed.

HISOFT BASIC - A BEGINNERS OVERVIEW

by Andrew Roddis

BASIC is the normal starting point for all home computer programrs and the Amiga is no exception, being suppiled with AmigaBasic as standard. This version of BASIC is by all accounts, quite good, giving access to all the Amiga's functions, including calls to the ROM libraries, but it is inherently slow. This is not a fault of the BASIC but is because most BASIC langauges are 'interpreted' i.e. each line of program is 'translated' by the computer so it can take the requested actions. All this takes time, hence the speed reduction.

HiSoft BASIC, on the other hand is compiled, this technique bypasses the interpreter and enables programs written in AmigaBasic to be compiled for maximum speed. (Admittedly they will be slower than pure assembler, but by how much I don't know.) AmigaBasic programs have to be saved in ASCII format or the HiSoft editor will not load them.

HiSoft BASIC also supports other basics with little change i.e. Microsoft Quick BASIC, which enables programs written on the PC to be ported over without too much trouble. The program is supplied on two disks, neither of which is copy protected (It can be installed onto a hard disk) and comes with an excellent A5 size ring binder manual, with some 360 pages of instructions, statements and appendices. The first disk contains the BASIC editor, compiler and a demo program, 'Towers of Hanoi'. This demo shows a programming feature called recursion, which according to the manual is very powerful. The second disk contains a wealth of demos, programs and another compiler which is used to produce 'stand alone' programs. Another feature of the first 1000 copies to be sold, is the addition of the Abacus book, AmigaBasic - Inside and Out. This runs to 550 pages (of nearly A4 size) which makes it quite a book. It is well indexed and is laid out in a manner which encourages the user to go through the book in a step by step fashion. The BASIC editor is easy to use, giving the cursor position and memory status report at the bottom left. The first thing I noticed was the speed improvment over the AmigaBasic editor. When a program is either typed in or loaded from another disk (drop down menus and requesters), pressing R-Amiga/X starts the compiler. A small window is opened and the compiler messages appear, Compiling, Tokenising, Parsing and Generating Code. This window also displays the error messages, if found, and gives the option to return to correct the error. (Plenty of those in my programs!)

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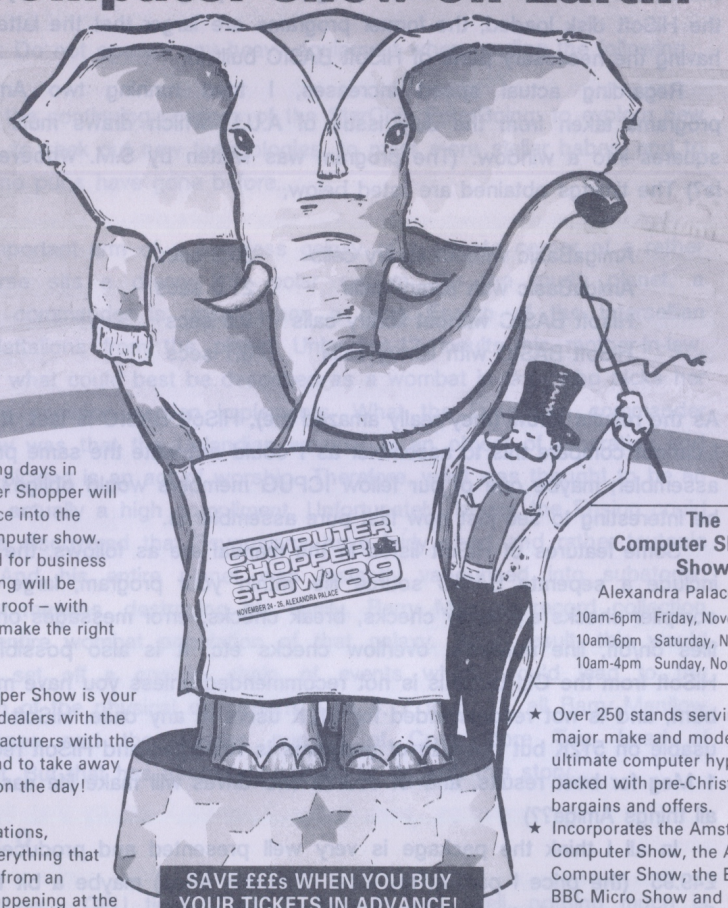

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If you choose to compile using the 'menu bar' style, this lets you compile to disk, rather than to memory which is the default. HiSoft BASIC also allows the choice between 'stand alone' programs or programs which only run with the HiSoft disk loaded, the former programs are larger that the latter due to having the necessary parts of HiSoft BASIC built in.

Regarding actual speed increases, I tried running two AmigaBasic programs taken from the July issue of A.U.I., which draws multi coloured squares into a window. (The program was written by S.M. whoever he/she is?) The timings obtained are listed below,

AmigaBasic without library calls	30.2 secs
AmigaBasic with library calls	21.0 secs
Hisoft BASIC without library calls	9.5 secs
HiSoft BASIC with library calls	3.1 secs

As the results show (they really amazed me), HiSoft BASIC is fast. It is a pity I cannot compare this to assembler as I could not write the same program in assembler; maybe one of our fellow ICPUG members would oblige? It would be interesting to see just how fast pure assembler is.

Some features of HiSoft listed in the manual are as follows, the ability to include a seperate BASIC source file within your program, large range of compiler checks e.g. array checks, break checks, error messages on/off, icon files on/off, line numbers, overflow checks etc. It is also possible to run HiSoft from the CLI but this is not recommended unless you have memory to burn, and is not recommended for 512K users in any case. HiSoft BASIC is usable on 512K but the size of programs is restricted and HiSoft recommend 1 Meg for best results, and of course two drives will make life easier (as in all things Amiga??)

In all I think the package is very well presented and produced, but at £49.95 (the price I paid at my local computer shop) maybe a bit too steep for some users, but a godsend to others.

AMIGATREK 4.0!

by Mike Smithwick

WARNING: Do not operate any heavy equipment when reading the following...

These are the continuing voyages of the StarChip EnterBoing: to explore new algorithms, to seek out new technologies, to meet more stellar babes, and to go where no puns have gone before...

In an unimportant arm of a pointless galaxy of a remote corner of a rather dull universe sits a dreary little solar system. On the fourth planet, a Pysgosian commander is upset when a mere Ensign of the Intersellian Imperial Battalions from the planet Unlandian-12 insults his mother-in-law, calling her what could best be described as a wombat in drag who picks her nose using common garden implements. What the Pysgosian commander didn't know was that the Unlandian wombat is an object of veneration and that nose picking is an act of worship. Therefore, what was thought to be an insult was actually a high compliment. Unfortunately, before the Ensign could explain, he discovered that Psygosians have fairly short and rather teutonic tempers. And his entire planet was instantly vapourised into subatomic component mesons, destroying his family, Barry Manilow record collection and the entire wombat population of that galaxy. As a result, this would eventually set off a cosmic chain of events which would lead to the destruction of the physical dimensions 1 to 4, 7 to 8, 11, all Barry Manilow master tapes and the sudden purging of Commodore Toy, head of Mousefleet. But that has absolutely nothing to do with this story...

Chapter 0

Captains Log - CPU time 172118.7. Dum-de-dum. Well, nothing much is happening. The boys are down on the Spectrum Holodeck testing the "limits of the computer's simulation algorithms". Ever since they received that new "Harems of Orion" database from MegaPrice Software, I haven't seen much of them.

As for myself, I've been spending some time on the new AmigaWhirl contest. Now if only I can figure out the DNA sequence of a Psygosian Wombat...

In the meantime, the EnterBoing has been having problems as of late. Ever since we upgraded to AmigaDross 37.8x10E21, all sorts of annoying

bugs have been popping up. We've been having to subsist on boxes of old-display cookies and blitter-chips and dip due to a bug in the Food Synthesizer System that makes everything look like slightly congealed lime jelly and taste like a cross between gerbil droppings and rancid road kill. Not a pretty sight when you had your heart set on a sauteed mushrooms, fettucini and a nice Chablis. Captain out.

Bored out of his Mindscape, Dale took the Digi-lift down to the Menu-Bar for a drink, passing some of those insignificant extras in red jerseys along the way. "There's nothing like some BoingBeer to fix things up" he thought.

Suddenly, and without warning, the ship's lights dim.

"Oh FACC!" cursed Dale, "I must've forgotten to pay the power bill!"

The lights flickered on and off, followed by distant gronking of the OverDrives. Dale quickly made his way back to the bridgboard, shoving some extras to the side.

"Fweeep-sheesh" went the Digi-Lift doors.

"Whirr, clickety-click, gronk boozabooza whirr eeeeeech!" went the Digi-Lift.

"Sheesh-fweep" said the doors, as they opened to release the Captain onto the bridge revealing a scene which would make make most men tremble. Each and every computer was slowly flashing red with the....Hello? What? An unknown GURU number!

"Dale to Holodeck! We've had a major systems failure boys, drop whatever your doing and get up here!"

"Geereech" went the doors as a flustered bridge crew drags-selected on in.

An exhausted Ensign Jim whined "Aww captain, couldn't it have waited. I was just getting to Dos-base!"

"Count your blessings" said Bryce, "I couldn't get by that damn code wheel!"

Dale slowly waved his hand across the room. "Well gentlemen, first the food-generator goes, then the main computers, what do you make of it?"

Jim was swept up into a trace like state, performing a heavy-duty analysis of the situation. "Well sir" he breathed, "I think the main computers have gone."

"Do you want me to fill out a bug-report?" Ensign Bryce injected with his boundless enthusiasm.

"Ensign Bryce, why don't you use your boundless enthusiasm to check the manuals first to see if they can help."

"NO! NOT THE MANUALS!!"

Dale tossed him a slender volume. "Here son, you can do it".

"This is it?"

"Hey, this is the most user-friendly StarChip ever made. What do you expect?"

Bryce's hand trembled as he slowly turned to the first page. "Introduction to the EnterBoing Class StarChip".

"Congratulations on purchasing your EnterBoing StarChip. The StarChip will provide you with years of effortless galactic hyperspace exploration, and a great chance to meet girls. ('Excuse me, how 'bout you and me blow this planet and go to the hotbaths on Foobar-12').

"Remember to send in your registration card so we can inform you of upgrades, bugs and possible problems with the matter-anti-matter maglev containment chamber..."

(The Ensign read further...)

"The bridge is where you control your Starchip. The captain's chair may be raised or lowered depending on what feels comfortable..."

(Skips to chapter 8) "...To reset the StarChip's clocks, press buttons 1,3,7,10 and 12 at the same time on the preferences panel. Of course, if you are humanoid, you may have problems with that, simply call up one of your mutant pals or someone from the planet Flophouse-7..."

After a few more minutes, Bryce closed the book with contempt and tossed it back to Dale.

"Nothing here of any significance, except I found out how to finally set the clocks."

Meanwhile, in an insignificant register on the Michelle chip of the Mark IV gravity generator from the Graviton Corporation ("our generators suck better than anyone elses!") a pointer decided he had enough mucking around according to someone elses offsets. In the process of exploring his own individuality as a pointer and re-examining his goals in his life, he changed the sign on a constant...

The crew abruptly found themselves plastered against the ceiling like spitwads in a 3rd grade classroom. The ship's message ports were bursting with activity about the toilets on decks 5 and 7 exploding not to mention all of the dust from the floors getting into the supra-drives.

"Hey! This is really neat! Look guys, I'm walking on the ceiling!" whooped Jim.

Dale grimaced, "Uh, why don't we call the tech-support line?"

Thinking that was a nobel idea, Lt. Dave pulled himself towards the communications console and dialed the line.

"(Ring-ring) You have reached the MegaCorps tech support line. All of our operators are busy now so please hold on. Unless of course you're

calling about the bug in the Matter-Antimatter Maglev Containment Chamber, in which case it's probably too late! (click, Barry Manilow music starts to play, click. buzzzzzzz...)"

"Dammit. The phone just hung".

Unaware of the havoc he was causing the diminutive pointer was having the time of his life. Turning the corner in the gravity generator he swept by another constant hurling the crew about the cabin, their Forms-in-Flight resembling so much popcorn in the popper.

As quickly as it began, the ship settled down. Muted emergency communications could be heard in the background. "Misaligned words on Deck 6", "Stay away from the toilets on Deck 12", "Escaped harem girls outside the Holodeck..."

"Hey guys, there's an intruder on board!" chirped Bob, the new user-cheerful computer.

The digilift opened, ("dweedlexweep-weeesh"), and out stepped the bearded rogue, the flamboyant and mysterious Galactic-Baron Piechart von Windsheild.

"Piechart you old scoundrel! It's been years since I last saw you at the Mousefleet Academy".

The smartly attired Baron grasped the Captain on both shoulders as an old friend. "Dale, it's good to see you, but that's not why I'm here. Sorry fellows," he said, glancing around at the others, "but I'm pre-empting your mission. It seems like I am in great need of a StarChip."

The crafty Baron strolled across the bridge with grace and aplomb.

"You see gentlemen, we're on our way to the lair of the GURU, to see who this character really is and why we must meditate on his blasted numbers. And with this wisdom, we can rule the Galaxy! Or at least, a couple of acres in Wyoming. Anyway, I've taken the liberty of inserting a little patch in your OS, changed the global vector to take us to the GURU's star system. And should any of you try to change the program and regain control of the ship, I'll a, I'll a ...", a smile crept across his interface, "I'll have you guys shrink-wrapped and put on the PageStream debugging team! Ha ha ha ha ha..."

Bryce interrupted him asking, "How do you know GURU exists, aren't the stories about him just myth and legends?"

"Certainly not!" spouted the brazen figure, "You see, I've had visions, Software Visions to be precise. Late one night I had put myself into the State of Boing after meditating on one particularly crufty number. And the message came to me that not only did he exist, but he was living in Computer Nirvana."

[Computer Nirvana is the legendary land where software is bug free, it rains RAM chips, and the CPU speeds double each week. In Computer Nirvana, BCPL is illegal, and the Macintosh is used to prop open doors or for target practice on the skeet range. It is here where Hackers are revered and showered with praise, and their project managers address them as "sir". Tech support lines are answered before the first ring, announced products are always released, and released early]

"So fellows, I hope you haven't made any Maxiplans for this evening as we're going on a little Trip Hawkins." (pause for readers to gag)

Will our crew ever meet the Guru before 1.4 comes out? Will Kodiak ever meet Miss Pixmate? Will Dan Quayle ever get his foot out of his mouth? Who cares? Join us same time, same DMA Channel for Episode 2, of "Where No Geek has Gone Before!"

Feel free to make use of this however you see fit. If you want to publish it in a local newsletter, please let me know (and send me a copy). It may be published only with the appropriate credit at the end, identifying moi, and stating that I am the creator of Galileo. And we thank-you for your support.

*** mike (still looking for a publisher) smithwick ***

To be continued...

READERS WRITE

edited by Brian Fowler

[Editor's note: Letters for publication should be sent on disk with accompanying printout to Brian Fowler (address inside front cover), The deadline is one week before the editorial copy date.]

The Readers Write section is rather bare this time; not because I haven't had the contributions - I have - rather because I have not the time to type in reams and reams of your letters. Please adhere to the guidelines. If your letter is more than say five lines long, send it as an ascii file on disk.

Geoff Payne writes from 45 Albany Street, Middlesborough, Cleveland TS1 4DB: Are there any members in the Cleveland area who have a 1571 or 1570 disk drive, who would consider loaning it to a computer club? For the purpose of transfering P.D. and home written software to and from a P.C. Also anyone interested in joining an established group (non games playing) Please contact me on Middlesbrough (0642) 240095.

Steve Travis, of 10 Sherwood Way, Cudworth, Barnsley, South Yorkshire S72 8BH writes about the joys of 128 CP/M: My setup is a Commodore 128, 1571 disk drive 1901 Monitor and Star LC- 10C printer. When in CP/M mode I am unable to display the pound sterling sign on either screen or printer. On pressing the pound key a hash (#) is displayed instead. Is it possible to redefine this key. On booting CP/M the character colour is purple, can I change this so that the character colour is say white at startup. Is it possible to add commands to profile.sub to change the colour and redefine the pound key? [See Vol 10, Issue 5, p518/9 - Joe]

David Martin (address inside back cover) writes on behalf of one of our overseas members :- I have received the following request from Michael Dimech in Malta, any response to this please send to me and I will pass it on. About two years ago he purchased an Epson compatible printer to run with his C64; unfortunately he has had problems with it and has not been able to get it repaired. He has also tried to contact the English supplier/manufacturer but with no response. On his behalf I also have made an abortive attempt to make contact with them and also to get an updated address, but no luck. Any member that has either a contact or a set of circuit diagrams or a Service Manual for the SAMELCO DX-85 printer (it has plug-in interface cartridges) or any other ideas please contact me.

DISCOUNT CORNER

by John Bickerstaff - Discount Officer

Please refer to pages 64 to 67 in the January/February issue for GENERAL INFORMATION and specific discount information. Refer to pages 162 and 163 in the March/April edition, pages 264 to 266 in the MAY/JUNE edition and pages 369 and 370 in the JULY/AUGUST edition for specific discount information. Do look at the items in this edition - some facilities have changed even since the previous issue.

CBM Hardware

Is available to members at discount rates. Call me for details. The PC30 series is now available, the basic unit consists of a 80286 processor - running at 6, 8 and 12 MHZ, 640k RAM, a 20MB hard disk, three full size expansion slots, a small footprint board, free on site maintenance and a 3.5 inch 1.44 MB floppy disk running MS-DOS 3.3. Discounted prices start at around £1100 with mono monitor.

The PC60 range has now been discontinued and will be replaced by the PC50 series. It is thought that details of the PC50 series will be announced at the PC show which will be held at Earls Court in September. There is also a rumour that there will be a bridge board for the Amiga 2000 series with an 80386 processor on board but nothing further is known about this.

The all purpose 1084S stereo sound monitor is to be discontinued, whilst the 1084 mono sound monitor will continue to be sold. At this time the Philips 8833 stereo sound monitor would seem to be the most likely alternative for most machines where you require a colour monitor.

Admiral Information Technology Services

Of 1 Milne Close, Letchworth, Hertfordshire, SG6 2TA (phone 0462-677402) have written to advise that members may utilise their FREE video digitizing service (for Amiga owners only). They also offer to members a printout of any IFF picture from an Xerox 4020 inkjet printer at 25P per screen. Please contact them direct asking for Matthew Adams and state your current membership number

Ariadne Interactive Limited

Have moved to Suite 322, Premier House, 10 Greycoat Place, London SW1P 1SB. This company supply the famous 'KickStart' Guide to the AMIGA, see page 64 in the January/February issue for price and postage costs.

Bytes & Pieces (Europe) Limited.

Yes this is the new full title of Bytes & Pieces, other details including their address and telephone numbers remain as before. Their product line now includes an 8MB RAM card for the Amiga 2000, the Spirit Genlock (said to be of Broadcast quality) suitable for PAL and NTSC - this requires 1MB of RAM and is available for the 500, 1000 and 2000 Amiga models - , a Sound Sampler which used the parallel port with through connections for a printer and the Fatter Agnus chip.

Diamond Computer Systems Limited

Have a telephone line exclusively for software. The number is 01-590 8967. They have now opened their retail outlet in Southampton at 114 Lodge Road.

ICPUG Special Offer.

ICPUG have a few copies of the Programmer's Reference Guide for the Commodore Plus 4, which are available for a donation to the club funds of £10, plus £2.50 for post and packing - please phone before ordering to check availability. We also have available some copies of the wordprocessor called EASY produced by MicroPro, the makers of WORDSTAR, for a donation of £10, plus £1.50 for post and packing. Orders please to the Discount Officer at 45 Brookscroft, Linton Glade, Croydon, Surrey, CR0 9NA with your cheque made out to ICPUG endorsed on the rear with your bank cheque card number and membership number please.

Micron Computer Centre Limited

Opened their retail outlet over the August Bank Holiday Weekend and they now have a new telephone number. Call 0787-881998 and ask for David Barber for the latest and best in Hard Disk drives for your Amiga.

Miracom

Is in the hands of the liquidator. This famous name, previously known as Miracle Technology, rather overstretched themselves when venturing into the world of 'Local Area Networks' and found themselves short of cash. There are hopes that a buyer will be found for the modem side of the company and that it can continue making these products. Further information will be provided when known.

Precision Software Distribution.

PSD have made a special offer to members for the life of this issue for the

supply of Superscript and Superbase for the C64 at a 50% discount from the RRP of £29.95, but please add £2 for post and packing. They are also offering ANIMagic, Sculpt 3D XL and Sculpt 4D Junior at RRP less one third. The RRP prices are £79.95, £149.95 and £119.95 respectively. You should order directly from PSD quoting your current membership number. PSD are at 6 Park Terrace, Worcester Park, Surrey, KT4 7JZ, 'phone 01-330 7166.

T.C. Computers of Wantage

This dealer of Commodore products has been mentioned by long time member Dave Priestly. Dave bought an Amiga 500 from Eddy of T.C. Computers for £349 including a modulator, WB 1.3 together with a painting package and one game. Cash orders only at this price.

Discount pages on the 'NETS'- COMPUNET goto ICPUG - MICRONET *ICPUG#

Please look at the advertisements in this and earlier issues for details of special offers, but please note that many are limited in validity so please call they before sending them your order (enclosing your current membership number of course).

FOR SALE AND WANTED

Editor's note: Copy for small advertisements (no more than six lines please) should be sent to John Bickerstaff (address inside front cover), to arrive one week before the editorial copy date. Naturaly, all software offered for sale must be original.

WANTED

WANTED: Student requires CBM 1571 disk drive. Please contact David Cross, 33 Sykes Street, New Hey, Rochdale, Lancs, OL16 4JP, or phone Shaw 0706 841 581.

WANTED: User manual for printer MPP 1361. Also books about the PET/8000 etc. Eric Ford, 16 Russell Drive, Malvern, WR14 2LE. Tel 0684 575370.

WANTED: Manuals for 8096. Wordcraft 80 and Silicon Office. Contact Peter Maybourne, 97, Cromwell Road, Whitstable, Kent. Tel 0227 262248.

WANTED: Has anyone any unwanted new/used 4164 150ns DRAM chips. Eight required for a project. Contact Paul Armstrong, 20 Mason Street, Workington, Cumbria, CA14 3EQ.

WANTED: Script/Plus, +4 User Manual, Anatomy of 1541, +4 Reference Guide, VIC-1541 User Manual, JCL Compiler for +4 and Multisoft Assembler for +4. I would like to purchase or borrow any of above. Unemployed +4 user so must be cheap. Details to J. Hadlow, c/o Showground, Buchan Park, Greendykes Road, Broxburn, W. Lothian, Scotland.

WANTED: Printer for PET 3032/8032, 3022 or similar, within reasonable collection distance south/central Scotland. Also word processor (tape or ROM). Contact J. Farquhar (Haddington, East Lothian) 062082 3926.

WANTED: Tractor Feeder for Commodore DPS 1101 (Juki 6100) printer. Contact Peter Longbottom, 42 Mayfair Road, Dartford, Kent, DA1 5AQ. Tel 0322 74371.

WANTED: Used but working C64 peripherals: 1581 disk drive, 'Magic Voice' or similar speech synthesis cartridge, MIDI and Robotics adaptors with associated software/documentation. Contact J. Ayliff, 1 Hill Road, Chelmsford,

Essex. CM2 6HG. Tel 0245 269683.

WANTED: Inside Commodore DOS, Plus 4 & C16 Reference Guide, 1541 Repair Handbook, The Complete C16. Write to John Hadlow, Showground, Buchan Park, Greendykes Road, Broxburn, W. Lothian, Scotland.

FOR SALE

FOR SALE: 8 years accumulation of PET gear must go to make way for PC. Computers, disk drives, dot matrix and daisy wheel printers, plotter, parallel/serial interfaces, CP/M box and card, EPROM burner and eraser, other add-ons, software, manuals and books. Phone Harry Johnson on 0436 73022 for details and lists.

FOR SALE: Commodore MPS 803 printer complete with Print Kit IV and tractor feed, spare ribbon, instructions, boxed £75. Commodore Easy-Script £6 . Gemini Mailist £5. Tasword £5. Little Computer People £5. All software disk based and orginals, boxed with instructions. Includes postage. Phone 051 523 5008.

FOR SALE: Amiga 500 with power pack, mouse, TV modulator etc. Only couple of months old, virtually unused. Bought as extra machine and now surplus to requirements. £300. Phone Jim MacBrayne on 041 639 1937 after 6pm.

FOR SALE: Star LC-10 printer £135. Less than year old in original box together with spare ribbon. Terry Hart, 17 Burns Gardens, Lincoln. Tel 0522 29643.

FOR SALE: D128 with SG10C printer, 64 1541 disk drive, modem, datasette, trivial pursuit, chess, 64 international magazines, 64 reference books etc. All in excellent condition. £350. Must go, owner needs space for Amiga. Phone 01 341 3080 evenings, or write Bessie Fernandes, 71 Dylan Thomas House, Demark Road, London N8 ODT.

FOR SALE: Commodore 128D. Internal 1571 disk drive, complete with data recorder, quickdisk cartridge, 3 slot motherboard with separate on/off switches. 60 disks of utilities. 300 games on disk. MPS 803 printer + spare ribbons. CP/M and 128 disks mainly ICPUG. Expert cartridge 3.2. Bargain at £395, no offers. Phone Albert Stead on 0705 387786.

FOR SALE: Amiga utilities and games all original, boxed and manuals. Photolab £35, Fantavision £20, DPaint II £10, The Works £35, Grabbit £10. Some games, phone for details, range £5 to £10. Phone Colin Smith on 0268 752013 evenings only.

FOR SALE: Amiga software. DigiPaint 2.0 PAL £25, Butcher 2.0 £15, The Pawn £10, Starglider £10, Virus £10, Pacmania £10, Pinball Wizard £10, Aztec C Developer 3.6 plus Source Level Debugger £175, Grabbit £10, GOMF 2.0 £15. Contact Lionel Tun, 2l Stansfeld House, Dunton Road, London SE1 5PP. Tel 01 232 2732.

FOR SALE: Amiga 500, a year old, hardly used, recently overhauled, BBC Emulator + RS232 lead, Starglider 2, printer lead, recent magazines, £60 worth of books, lots of PD demos/utilities. Cost £580, yours for £380. Contact David James on Cardiff (0222) 752143.

FOR SALE: CBM 8032 computer. £75 o.n.o. Tel L. Faulkner. Hungarton (Leic.) 305.

FOR SALE: C64, 1570 disk drive, MPS803 printer, 2 1531 datasettes, AR 4, Burst Nibbler, manuals, books, over 100 software titles all originals, boxed, VGC. Worth over £1000, sell for £325 ono. Tel Jason Birnie 0483 272543 after 5pm.

FOR SALE: 40+ 5.25 inch 360k PC compatible disks, contain mostly shareware software, any offer considered. BBC OFS chip plus other BBC bits, any offers considered. Microsoft C manual, free. BBC books, any offers. Contact J. Hadlow, c/o Showground, Buchan Park, Greendykes Road, Broxburn, W. Lothian, Scotland.

FOR SALE: CBM 1541 disk drive for C64/128 or VIC 20! £90 ono. Wickins 0492 60258 evenings, Airlie, Betws-yn-Rhos, Abergele, Clwyd, LL22 8AT.

FOR SALE: Acoustic coupler (Modem) £20. DEC VT100 Terminal £150. Telephone answering machine £10. Phil Boyd, 25 Kennedy Way, Denton, Manchester, M34 2DG. Tel 061 336 7540.

FOR SALE: 14 inch Ferguson colour portable TV and computer moniter model no. MC01, with inputs for composite video and RGB signals, complete with adaptor for CBM 128 in 80 column mode. In good condition with manuals

etc. Original price £200, priced at £100 ono. Apply to John Walker, 14 Leamside, Leam Lane Estate, Gateshead, Tyne and Wear, NE10 8NT. Tel 091 4690157.

FOR SALE: Modem - Tandata TM110 - 1200/75 baud, autodial. Perfect condition, + VIC20 Micropack (Software, leads & manual). Modem will work with other micros. £50 ono. Phone Philip Chambers on 0784 259241.

FOR SALE: C64 & C2N £ 80, MPS 801 printer £75, 1541 drive £90, Music expansion system + Extras disk £85, Final Cartridge III £20, Software (disk) Pascal £10, Disk toolkit £10, Mini Office II £10, Multisoft Assembler £15, Laser basic & compiler £10, Graphic adventure creator £7, Books: too many to list, send sae for list. Mike Slater, 2 Hamilton Close, Haslington, Cheshire, CW1 1PQ. Tel 0270 585620.

FOR SALE: C64 bits! Stack centronics cable and software £10. Repaired C64 power supply £7. Music keyboard overlay £3. Team Mate integrated word pro/database/sheet £10. Print Shop complete in box £10. York Electronics RS232 cable/interface (C64 to Amiga) £10. Tel. David Pye 051 644 0205 evenings (Merseyside).

FOR SALE: Amiga Progs! Scribble II, complete in box, unused, £15. Test Drive, unused, £4. Also Amiga to C64 interface cable £15. Tel. David Pye 051 644 0205 evenings (Merseyside).

FOR SALE: CBM 1520 Printer/Plotter (with manual) + pens & paper £35. Voyager 7 modem £20. Dead Compunet modem (black box) £2 for p & p. Centronics cable for C64 £3. Simons Basic cartridge & manual £6. Trilogic Expert cartridge (for C64) & Utilities Disk with s/ware on tape & 3.5 disk £20. All prices include p & p. Contact David Bousfield, West Hayes, Far End, Sheepscombe, Stroud, Glos. GL6 7RL. Phone 0452 813336.

FOR SALE: C64 games, all originals boxed with instructions. Cassettes from 50p each (100 titles), disks from £3 each (20 titles). Send sae for list, or swop above games for other C64 stuff (not games). Ian L Dalziel, 7, Walker Avenue, Troon, Ayrshire, KA10 6SA.

FOR SALE: 512k Amiga 1000. No monitor. Includes mouse, Epson printer lead, KS/WB 1.1, 1.2 and 1.3. 10 games, Textcraft WP, Music Studio, 5 blank disks. Offers around £225. Ring Mark on 01 646 5374 after 6pm.

ICPUG SOFTWARE LIBRARIES

Organiser: Joe Griffin, Clovelly, Lynwick St, Rudgwick, Horsham, Sussex RH12 3DJ

Please remember that the libraries are operated on an entirely voluntary basis and unlike many of the American User Groups, ICPUG DOES NOT CHARGE A COPYING FEE.

The Libraries contain PUBLIC DOMAIN programs from a wide range of sources, including our own members and other user groups. WE DO NOT SUPPORT SOFTWARE PIRACY.

Members may obtain ALL the library material. In order to retain a measure of control over the work-load imposed on the copiers however, we do restrict the amount of material which can be obtained from any one request.

Disk users may obtain up to two disk copies at a time (Amiga: five).
Tape users may obtain up to four programs from any one disk.
(Please use a C-60 or C-90 tape; a C-15 may be too short.)

For ALL libraries (except VIC) a catalogue disk is available, containing a list of the library contents. PRINTED CATALOGUES ARE NOT AVAILABLE.

To obtain copies of catalogue or library disks, please send:
A statement of what you want.
Your membership number (We cannot provide the service without it).
Disks (STATING format [type of drive] required) or tape (C-60 or C-90). We will not use a disk as a 'flippy' as it can damage the disk drive.
Pre-Addressed reusable packaging suitable for return (there have been occasions when disks have arrived bent in half! Please ensure the packaging is adequate.)
Return postage - SEND STAMPS. (Overseas members should send International reply Coupons. Allow Surface: 1.5 IRCs, Air: 2.5 IRCs per disk sent please.)

PET Joe Griffin (see above)

VIC Tape & 1540/1541. Copies from David Miller (See C64 Library)
8050/8250 format only from Joe Griffin (see above)

COMAL Brian Grainger, 73 Minehead Way, Stevenage, Herts, SG1 2HZ.

1520 PLOTTER W.G.C. Austin, School of Geography, Faculty of Humanities, Newcastle Polytechnic, Lipman Building, Sandyford Road
Newcastle Upon Tyne, NE1 8ST.

1520 (Tape) John Bentley, 38 Conway Road, Taplow, Maidenhead, SL6 0LD

PC Organiser: Don Skene, 307 Queen's Road, Maidstone, Kent, ME16 0JN
Please send your requests to the copier listed below who deals with disks in your required format. Each librarian holds the complete catalogue disk in his own format.
360K - Pete Crowder, 27 Crawford Drive, Liverpool, L15 8AE
720K - David Harrow, 28 Phoenix Drive, Wateringbury, Maidstone, ME18 5DR
1.2M - John Robinson, 5 Alba Close, Silica Lodge, Scunthorpe, DN17 2XD

Plus/4 & C16 Organiser Richard Hunt 45 Cumberland Rd, Bromley, BR2 0PL
Send requests to the copier who deals with the first letter of your name.

A-M plus all tape requests - Richard Hunt (see above)
N-Z Joe Shirras, High View, 69 Igten Road, Burnley, Lancs, BB12 0HP

C-64 Organiser: David Miller, 38 Exeter Gardens, Ilford, Essex, IG1 3LB
Send requests to the copier who deals with the first letter of your name.

A-C Joe Quintin, 7 Cotterhall Ct, Clover Hill, Bowthorpe, Norwich NR5 9AZ
D-H Roger Mather, 138 Clensham Lane, Sutton, Surrey, SM1 2NG
I-M James Mason, 35 Woodburn Drive, Dalkeith, Midlothian, EH22 2AZ
N-R Norman Wright, 73 Queens Road, Littlestone, New Romney, TN28 8LS
S-Z M J Mann, 502 Dereham Road, Norwich, Norfolk, NR5 8TU
Tape Joe Quintin (see above)
Overseas & 8050/8250 Joe Griffin (see above)

128 Organiser: Chris Wright, 37 Cecil Street, Lytham, Lancs, FYE 5NN
Send requests to the copier who deals with the first letter of your name.

A-C Bill Gardner, 12A Wayside Acres, Codsall, Wolverhampton, WV8 2BS
D-J Tom Nuttall, 43 Renshaw Drive, Bury, Lancs BL9 7NJ
K-R Robert Daly, 6 Derwent Crescent, Clitheroe, Lancs, BB7 2PW
S-Z Dave Tew, 4 Ascombe Cresc, Hambrook Pk, Charlton Kings, Cheltenham, Glos, GL52 6YH

Overseas (All): Derek Clifford, 36 Hanover Avenue, Feltham, TW13 4JW
1581 requests to Bob Daly (see above)
128 Bulletin Board on 0902-745337 (24 Hrs; also for PC users)

AMIGA Organiser Peter Miles, The Queens Armes Hotel, Charmouth,Dorset.
Write to him with/about your programs. Disk copies should NOT be requested from the organiser.
Amiga disk copiers: [Not more than five disks at one time] Specific ICPUG Disks and the catalogue of Read-Me files (ie. contents) for these. Send your request to the copier below who deals with the first letter of your surname.
A-D David Annal, P.O Box 42, London, SW16 5HJ
E-K Peter Reeve, 2 Court Road, Tunbridge Wells, Kent. TN4 8ED
L-R David Flint, 24 Hawthornden Avenue, Uttoxeter, Staffs, ST14 7NZ
S-Z Chris Wright (see C-128 above)

Public Domain (Non-ICPUG)
Amicus disks and the catalogue of Read-Me files (ie. contents) for these may be obtained soley from:
Ken Turner, 9 Thirlmerere Court, Keswick Walk, Lancaster, Lancs. LA1 3LQ

Fish disks and the catalogue of Read-Me files (ie. contents) for these. Send your request to the copier listed below who deals with the first letter of your surname. Catalogue now on two disks.

A-K Eddie Moore, 4 Gosling Close, Hatton, Warrington, Cheshire, WA4 5PB
L-Z John Grove, The Cobnuts, Cobs Close, Ightham, Sevenoaks, TN15 9DB